DE-STA-CO
A DOVER COMPANY

Robohand

AUTOMATION SOLUTIONS

Spring 2009

PARALLEL GRIPPERS

ANGULAR GRIPPERS

LINEAR ACTUATORS

ROTARY ACTUATORS

ROBOTIC TOOLING

FEED ESCAPEMENTS

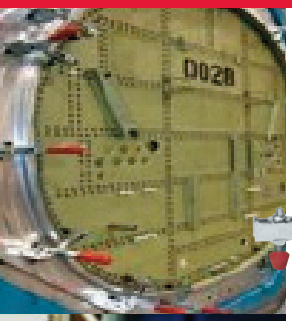
MOUNTING STANCHIONS

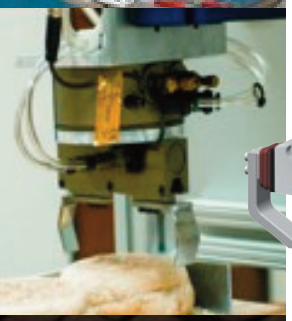
www.destaco.com

Precisely positioning our customers for productivity.

Look for
our exclusive
DIRECTCONNECT
technology.

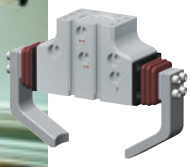
DE-STA-CO OVERVIEW

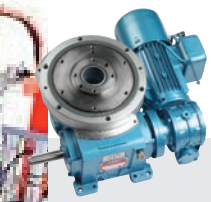


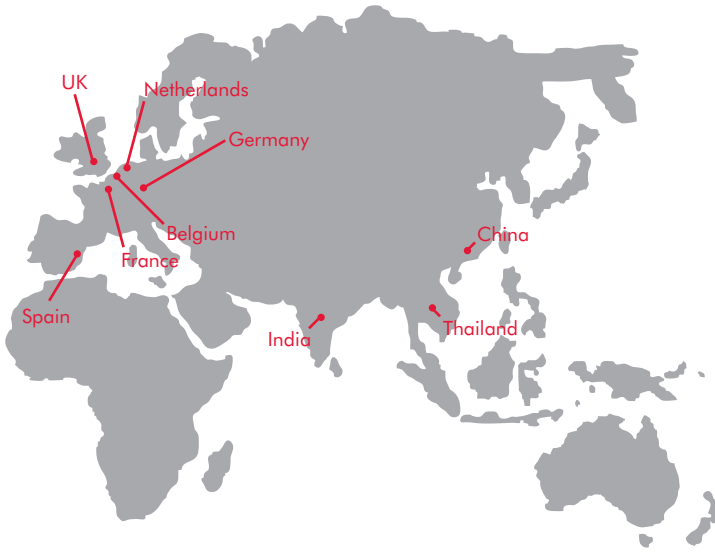


THE BEST PRODUCTS. UNMATCHED SERVICE. WORLDWIDE.

With a support network spanning the globe, DE-STA-CO offers consistent, comprehensive service to any location in the world. Whether your operations are localized or span multiple continents, you will always have access to the highest levels of customer service and technical support.







TEAM DE-STA-CO

Team DE-STA-CO represents our efforts to provide consistent, standard-setting service and products to every DE-STA-CO customer, regardless of geographic location. Through this commitment, we are able to draw on our extensive knowledge base to always provide the perfect solution specific to your unique applications. This progressive global approach to doing business provides a level of expertise that is unmatched in the industry.

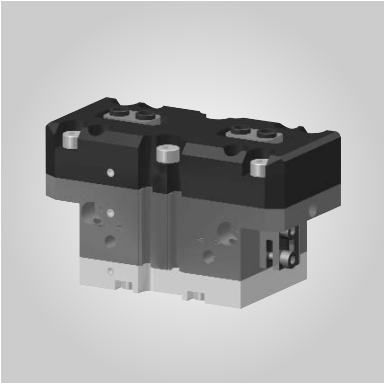
For more information call us at: **1.888.DESTACO or 248.836.6700** Fax: **248.836.6901** Visit us on the Internet at: **www.destaco.com**

What's NEW from

DE-STA-CO
A DOVER COMPANY
Automation
Robohand FERGUSON
CAMCO

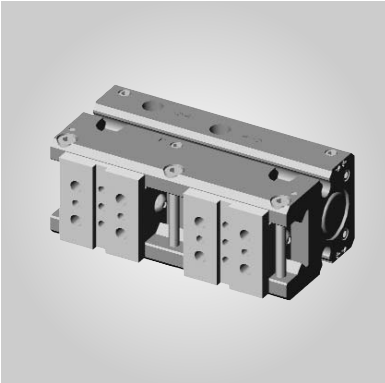
RPE ELECTRIC PARALLEL GRIPPERS

See page 1.6



RDH/DDH SHIELDED PARALLEL GRIPPERS

See page 1.12

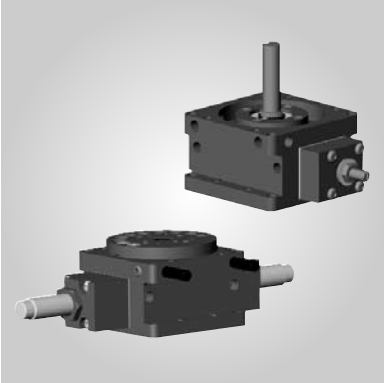


DPP PRECISION PARALLEL GRIPPERS

See page 1.32

DPW WIDE BODY PARALLEL GRIPPERS

See page 1.176



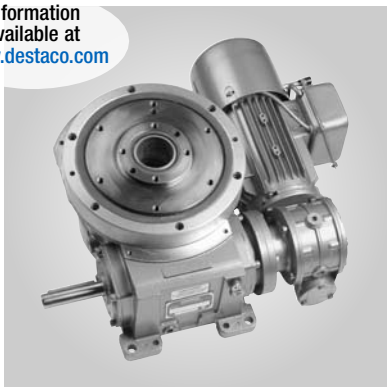
DRG & DRF ROTARY ACTUATORS

See page 3.2

Information available at www.destaco.com

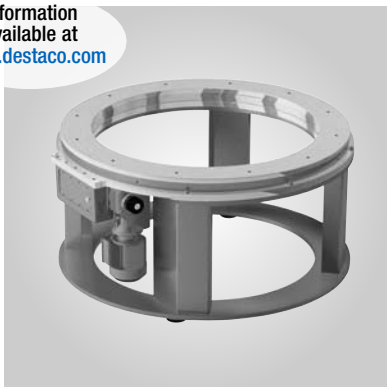
PRECISION LINK CONVEYORS

Information available at www.destaco.com

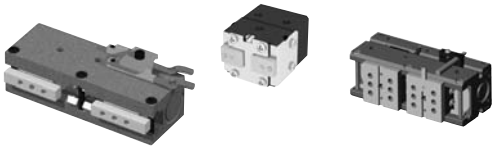


INDEX DRIVES

Information available at www.destaco.com



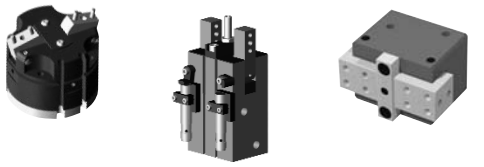
RING DRIVES



PARALLEL GRIPPERS

1.6 *RPE*
1.12 *RDH/DDH*
1.32 *DPP*
1.52 RPL
1.60 RPLC
1.68 RPM
1.76 RPMC
1.84 DPG
1.96 *DPDS*
1.112 *DPDL*
1.128 DPL
1.140 RP-5&10
1.146 RP
1.156 RPS
1.166 GC
1.176 *DPW*
1.194 RPW
1.202 RIM
1.206 "B" Series
1.208 RTH/DTH
1.230 PPC

1



ANGULAR GRIPPERS

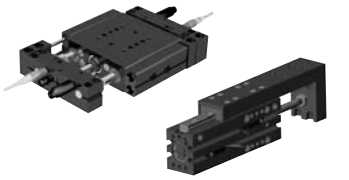
2.4 RUA/DUA
2.18 RA-5, 6, 7, 8 & 10
2.30 RA15, 25
2.36 DCT/CT
2.48 DCT-RE/CT-RE

2

ROTARY ACTUATORS

3.2 *DRG*
3.14 *DRF*
3.26 RR-*18 & 28*
3.32 RR-36 & 46
3.42 RR-56, 66, *& 76*

3



LINEAR SLIDES

4.8 DLB-B & L
4.24 DLB-TANRU
4.38 DLT-B
4.46 DLT-E&L
4.62 DLT-TANRU
4.82 *DLM*

4

MOUNTING STANCHIONS

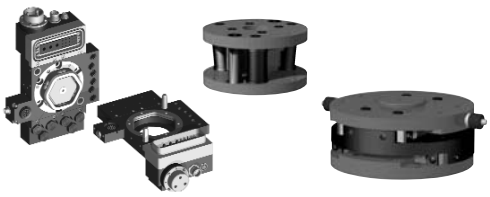
5.6 DMM-08
5.16 DMM-16
5.26 DMM-25
5.36 Components

5

FEED ESCAPEMENTS

6.2 RFE

6



ROBOTIC TOOL CHANGERS
COMPLIANCE/OVERLOAD DEVICES

7.2 QC
7.22 RQC
7.56 RCW
7.68 KA
7.78 CH
7.88 ULS
7.98 AU
7.108 AUR

7

VALUE ADDED SERVICES

8.2 Modular Automation
8.5 Specials
8.6 Robosizer

8

INDEX

9

Highlighted text indicates NEW *products.*

Terms & Conditions

GENERAL — All quotations, acceptance and orders submitted by or to and all contracts made with Robohand shall be upon and subject to the following terms and conditions except in so far as specifically agreed to by Robohand in writing upon or annexed to a copy thereof.

QUOTATIONS AND PRICES — Prices are subject to change without notice. Written quotations expire 30 calendar days from the date of issue and are subject to termination by notice within that period.

PURCHASE ORDER — If this quotation is accepted and Buyer's order form is used for the purpose, it is expressly understood and agreed that the terms and conditions herein set forth shall prevail, insofar as the same may in any way conflict with the terms and conditions set forth in such order form, and the issuance of such order by Buyer shall be deemed to note Buyer's assent to the foregoing.

PAYMENT — Unless expressly agreed to the contrary by Robohand, all accounts shall be paid net within 30 days from the date of invoice. All checks and money orders should be made payable to Robohand. Robohand reserves the right to charge interest 1% above the base lending rate of Bank of America for the period that the account is overdue for payment and the Buyer shall reimburse Robohand for all costs of collection including reasonable attorneys fee on all overdue amounts. In so case will the property of any of the goods pass to the Buyer until payment of the full price has been made to Robohand. So long as any payment under this contract is overdue, Robohand reserves the right to withhold or suspend performance of any contractual obligation.

DELIVERY — Any times quoted for delivery or dispatch are to date from the receipt by Robohand of written order to proceed and all necessary information and drawings to enable Robohand to put the work in hand and Robohand's acceptance in writing of such terms. The time for delivery or dispatch shall be extended by a reasonable period if caused by any industrial dispute or by any cause beyond Robohand's reasonable control.

TAXES — The amount of the present or future sales, revenue, excise, or other taxes applicable to the products listed herein shall be added to the purchase price and shall be paid by the Buyer or in lieu thereof the Buyer shall provide Robohand with a tax exemption certificate acceptable to the taxing authorities.

INSTALLMENT DELIVERIES — Robohand shall have the right to make delivery by installments of such quantities and at such intervals as it may decide and any express provisions as to installments in the contract shall be in addition to and not in derogation of this right.

GOODS LOST OR DAMAGED IN TRANSIT — Unless Robohand receives a complaint in writing within 3 days of the receipt by the Buyer of the goods, the goods shall be deemed to be in good condition and of the quality and description invoiced or in the case of non-delivery, Buyer shall furnish written notice within such time from the date of dispatch as shall enable Robohand to make a reasonable claim on the carrier.

DEFECTS AFTER DELIVERY — Robohand will make good by repair or at it's option by the supply of a replacement: defects, which under proper use, appear in the goods within a period of one (1) year after the goods have been delivered and arise solely from faulty design (other than a design made, furnished, or specified by the buyer. Materials or workmanship provided that have defective parts will be returned to Robohand if so required, Robohand will refund the cost of carriage on such returned goods and the repaired or new parts will be delivered free of charge.

SHIPMENT — All prices are F.O.B. Our factory, Monroe, CT and route of shipment are at our discretion, unless the Buyer supplies implicit instructions. All shipments are insured at the Buyer's expense and made at the Buyer's risk. Identification of the goods to the contract shall occur as each shipment is placed in the hands of the carrier.

DRAWINGS — All descriptive and forwarding specifications, drawings and particulars of weight and dimensions submitted with Robohand's proposal are approximate only and the descriptions and illustrations contained in Robohand's catalogs, price list and other advertisement matter are intended merely to present a general idea of the goods described therein and none of these shall form part of a contract and any statement or representation made by or on behalf of Robohand is executed to the extent authorized by The Misrepresentation Act, 1967.

EXCLUSIONS OF LIABILITY — Any warranties given by Robohand in these Conditions of Sale are in lieu of all other warranties or conditions express or implied by common or statute law and Robohand shall not be liable to the Buyer for any consequential damage or loss whatsoever nature resulting from defects in material of workmanship, except as herein provided, or from any other breaches of this contract by Robohand whatsoever with the exception of damage or loss caused through death or personal injury resulting solely from negligence of the seller in the manufacture, supply or repair of the goods

ROBOHAND'S RIGHT OF POSSESSION — Robohand shall have the right, in addition to all others it may possess, at any time, for credit reasons or because of Buyer's default or defaults, to withhold shipments, in whole or in part, and to recall goods in transit, retake same, and repossess all goods which may be stored with Robohand for Buyer's account, without the necessity of taking any other proceedings, and Buyer consents that all the merchandise so recalled, retaken or repossessed shall become Robohand's absolute property, provided that Buyer is given full credit therefor. The foregoing shall not be construed as limiting, in any manner, any of the rights or remedies available to Robohand because of any default of Buyer under the Uniform Commercial Code as in force and effect in the State of Connecticut on the date of the signing of this agreement.

SPECIFICATIONS — Normal tolerances in specifications shall be acceptable. GOODS NOT OF ROBOHAND'S MANUFACTURE — Robohand will give the Buyer a guarantee equivalent to guarantee (if any) which the supplier of such goods in respect thereof but not so as to impose on Robohand in respect of such goods a liability greater than those contained in these Conditions of Sale.

RETURNED MATERIAL — In no case are goods to be returned without first obtaining Robohand's permission. Only unused material as currently manufactured, which has been invoiced to Buyer within 90 days, will be considered for return.

REPAIR WORK — Quotations for repair are made on a preliminary examination of the goods to be repaired. To assure a satisfactory repair, it is frequently necessary to replace parts which on first inspection appear to be reusable and/or carry out additional work to that originally quoted for Robohand therefore reserves the right to invoice repair work on the basis of ascertained costs. If following receipt of a quotation for the repair of goods the Buyer decides not to proceed, Robohand reserves the right to charge for dismantling and installation. If within 30 days from receipt of a quotation for the repair of goods the Buyer does not give any instructions, Robohand will not therefore accept any liability for loss of or damage to any of the Buyer's property remaining in its hands.

PATENTS — In the event of any claim being made or action taken being brought against the Buyer in respect of infringement of patents by the manufactured or sale by Robohand or goods supplied to the Buyer being goods manufactured according to the designs and specifications of Robohand, the Buyer shall notify Robohand immediately of any such claim being made or action being brought and Robohand shall be at liberty with the assistance of the Buyer, if required, but at Robohand's expense, to conduct all negotiations for the settlement of the same and/or litigations that may arise therefrom. The Buyer shall indemnify Robohand against all costs, claims, expenses, damages, charges or liability whatsoever in respect of or arising from any claim for infringement of any patent, trademark or registered design relating to any product supplied to the design of the Buyer or following the instructions of the buyer.

LEGAL CONSTRUCTION — Unless otherwise agreed in writing, contracts shall, in all respects, be construed in accordance with the laws of the State of Connecticut and operate as a contract conforming to American law.

CONTROLLING PROVISIONS — These terms and conditions shall supersede and terms, provisions and conditions contained on any confirmation order, or other writing Buyer may give or receive and the rights of the parties shall be governed exclusively by the terms and conditions hereof. Robohand makes no representations or warranties concerning this order except such as are expressly contained herein, and this order may not be changed or modified orally.

LIMITATION OF WARRANTY — All Robohand products are to be free of actual defects in material and workmanship, provided any such defect be reported to Robohand in writing within one (1) year of shipment from factory. This warranty is limited to replacing or repairing at the company's option, F.O.B. the company's factory any part which, upon company inspection, is found to have a defect in material and/or workmanship. The Company, in no event shall be liable for indirect or consequential damages arising out of the use of Robohand products. Components purchased by the company from others for inclusion by the company shall be warranted to the extent set out and/or to the guarantee or warranty, if any, made by the supplier of said component. APART FROM THE ABOVE WARRANTY, THERE ARE NO WARRANTIES EXPRESS, WRITTEN, IMPLIED OR STATUTORY, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WHICH EXTENDED BEYOND THE DESCRIPTION ON THE FACE HEREOF AND ROBOHAND SHALL NOT BE LIABLE DIRECTLY OR INDIRECTLY ARISING FROM THE USE OF SUCH PRODUCTS OR FOR ANY CONSEQUENTIAL DAMAGES. Robohand expressly reserves the right to substitute materials in the products described in the catalogs and any supplements thereto: however, this shall not apply to special order products and/or custom products where Robohand is advised in writing of specific material requirements and agrees in writing to comply with the request for such materials.

Applications Form

Company Information:

Company Name:_____ Date_____

Address:_____

City:_____ State_____ Zip_____

Phone:_____ Fax:_____ Web:_____

Key Contact Information:

Name:_____

Phone: ( ) _____ Ext._____ Fax: ( )_____ Email:_____

What is your time frame to purchase?

☐ Immediate ☐ 3-6 Month ☐ 6-12 Months ☐ Other:_____

What is your expectations on delivery? _____ weeks

What is the Quantity Required? _____ pcs.

Specifications:

Air Pressure:_____ psi Finger Length:_____ in. Part Weight:_____ lbs.

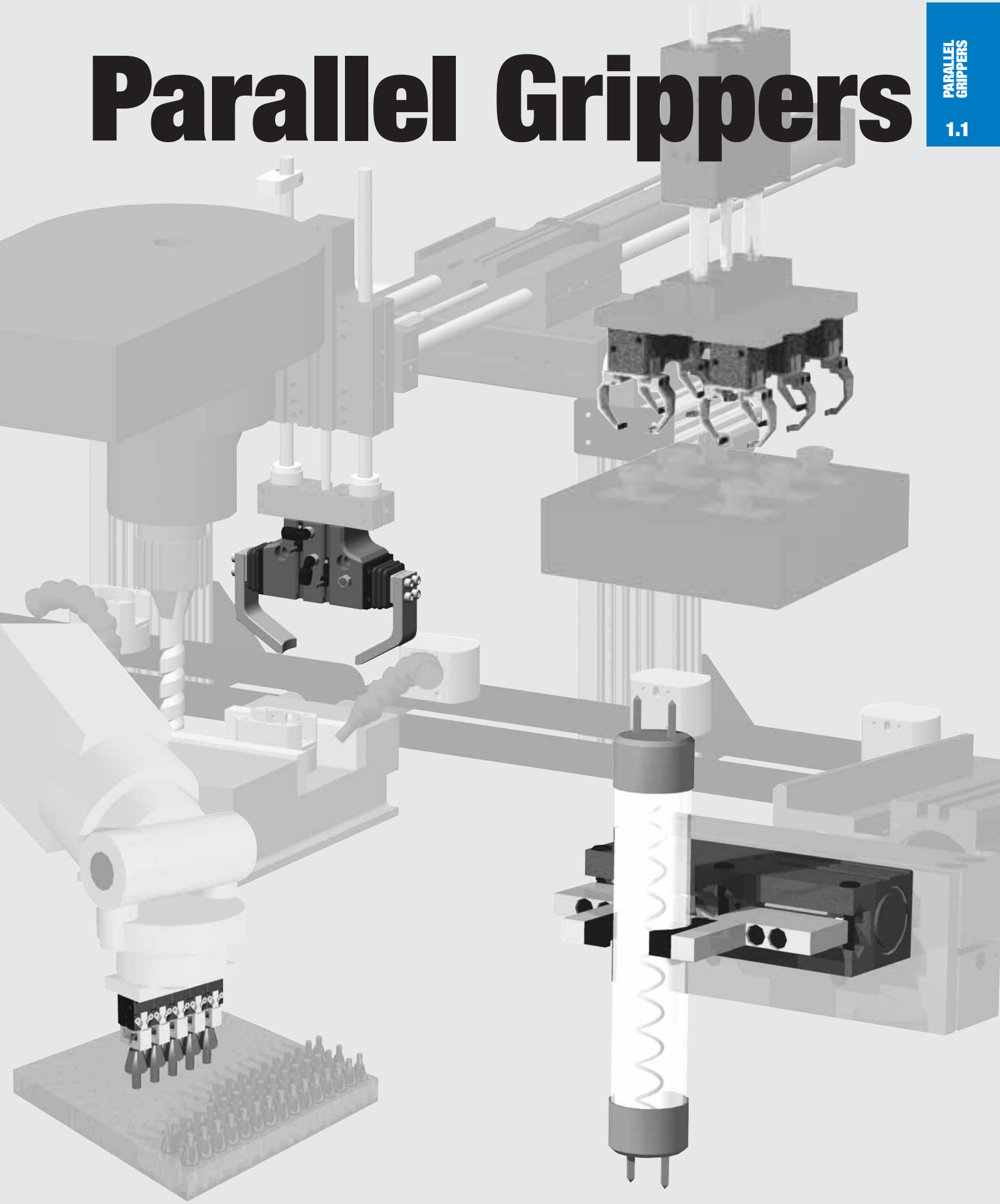
Stroke Required:_____ in. Cycle Time:_____ Sec Cycle Rate:_____ cycles/hour Duty Cycle:_____ %

Environment: ☐ Dirty ☐ Corrosive ☐ Clean Room ☐ High Temp ☐ Other_____

Description:

Please describe your application. Include a sketch or attach additional sheets if necessary. Please provide any photos you have available.

Parallel Grippers



Parallel Motion Gripper

NEW

RPE
E-Gripper Electric Gripper Series

- Clean room class 100, class 10 with scavenge
- Cost comparable to pneumatic systems
- Eliminates need for pneumatics
- Utilizes 24VDC signal
- No programming or software required
- 60 parts per minute—no problem!
- Compact, lightweight design

See Page 1.6

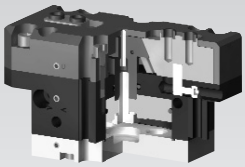
RPM
Micro Series

- Extremely small size—as small as 5/8" wide!
- Compact design allows for gripping small parts in small spaces
- Top air manifold eliminates the need for air fittings and allows grippers to be mounted in close array
- Ultra low friction mechanism allows for consistent, repeatable gripping forces

See Page 1.68

NEW

RDH/DDH
DIRECTCONNECT Two Jaw Parallel Series



- DIRECTCONNECT mounting surface (sizes 1-5)
- Shielded design deflects chips and other particulate away from the internal components
- Large surface area of the jaws allows for use of long fingers
- All gripper sizes are available in 2 strokes sizes.

See Page 1.12

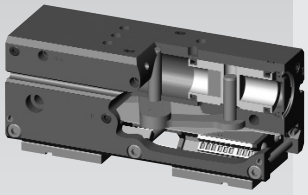
RPMC
Micro Clean Room Series

- Extremely small size—as low as 5/8" wide!
- Compact design allows for gripping small parts in small spaces
- Top air manifold eliminates the need for air fittings and allows grippers to be mounted in close array
- Ultra low friction mechanism allows for consistent, repeatable gripping forces
- Shielded with purge port

See Page 1.76

NEW

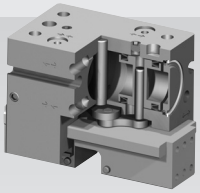
DPP
DIRECTCONNECT Precision Series



- Precision parallel gripper featuring our DIRECTCONNECT™ mounting pattern
- "Dual-V" precision roller bearing design provides zero side play for excellent part position repeatability
- Low friction design allows for delicate part handling
- Synchronized and non-synchronized versions available
- Optional double acting spring assist for increased force or failsafe operation

See Page 1.32

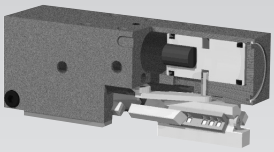
DPG
DIRECTCONNECT Modular Series



- Multiple DIRECTCONNECT™ mounting locations
- Multiple air port locations
- Spring assisted design for failsafe operation or increased grip force
- Shielded design repels contaminates
- Synchronized and non-synchronized versions

See Page 1.84

RPL
Low Profile Series

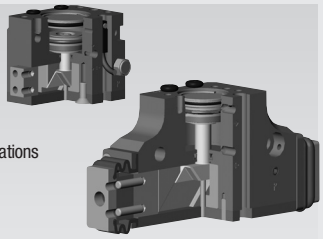


- Lightweight, Compact
- Patented Dual "V" Roller Bearing System
- Excellent accuracy and repeatability
- Synchronized and non-synchronized versions available

See Page 1.52

NEW

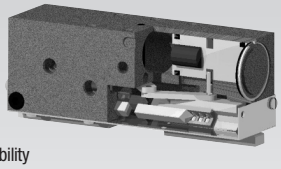
DPDS & DPDL
DIRECTCONNECT Modular Series



- Multiple DIRECTCONNECT™ mounting locations
- Multiple air port locations
- Multiple strokes per size
- Front-to-back thru-body mounting
- Extended strokes (**DPDL**)
- Purge/scavenge ports for harsh environments
- Optional bottom mount jaws, corrosion resistant hardware, high temperature seals, and sealed jaw boot (**DPDL**)

See Page 1.96

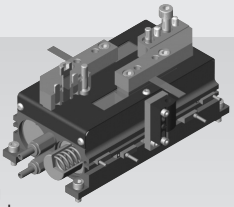
RPLC
Low Profile Clean Room Series



- Designed for use in Class 10 clean rooms as well as in harsh environments
- Stainless Steel hardware and covers for durability
- Vacuum/Pressure port
- Patented Dual "V" Roller Bearing System
- Excellent accuracy and repeatability

See Page 1.60

DPL
DIRECTCONNECT Long Stroke Series

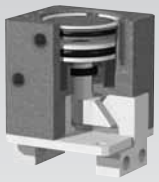


- Designed for use in confined spaces, combining long strokes with the high gripping force provided by two simultaneously acting pistons.
- Offers wide range of options and accessories (safety springs, in-line jaws, magneto resistive or inductive sensors).
- Enclosed, shielded design repels chips and other particulate from internal drive mechanism.

See Page 1.128

Products Overview

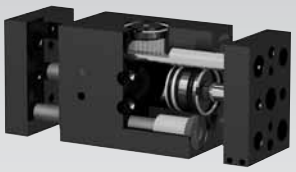
RP
Miniature Double Wedge Series



- Compact size, high gripping force, and extended jaw design facilitates finger attachment for smaller parts.
- High grip force to weight ratio make these grippers very popular on small robots.
- Miniature size allows banks of grippers to be mounted in close proximity for multiple part picking and placing.
- Internally sealed for use in hostile environments

See Page 1.140

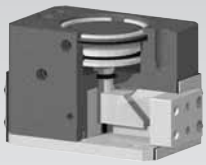
RPW
Large Format Wide Body Series



- Excellent jaw support through the full body of the gripper
- High gripping forces utilizing two opposing pistons
- Synchronized and non-synchronized versions available
- Superior accuracy and repeatability
- Sealed design for harsh environments

See Page 1.194

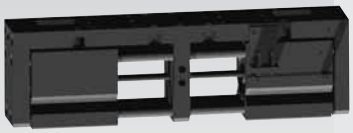
RP
Double Wedge Series



- Patented "Double Wedge Design" for extreme high grip force to size ratio
- Internally sealed for use in hostile environments
- Superior accuracy and repeatability
- Made from 7075-T6 aircraft quality aluminum hardcoat anodized to RC60 with Teflon® impregnation
- Highest grip force to weight/size ratio in the industry

See Page 1.146

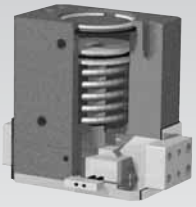
Custom Wheel Gripper
RIM Gripper Series



- Wide body, long stroke design
- Designed for maching and foundry applications
- Bolt-in replacement for PHD GRR Series
- Multpile sensing options
- Rigid design and full body support of jaws allows for longer finger lengths

See Page 1.202

RPS
Double Acting Spring Assist Series



- Spring assisted design for failsafe operation or increased grip force
- Fatigue resistant design for maximum spring life
- Utilizing our patented "Double Wedge Design"
- Superior accuracy and repeatability
- Sealed design on larger units repels chips and other particulate from internal drive mechanism

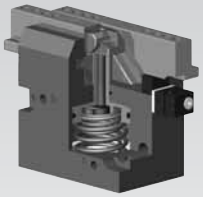
See Page 1.156

B-Series
Industrial Grippers

- For large and wide parts in machining and foundry applications
- Heavy duty, rugged designs
- Extremely high grip forces and moment loads

See Page 1.206

GC Series
Precision Parallel Gripper



- Precision operation
- Spring assist
- Grippers are fitted with 2 sensor holders (sensor available separately)
- Side or rear airports
- Optional 3rd sensor for part sensing, Viton® seals for high temperature applications, and encoder available

See Page 1.166

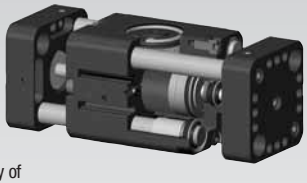
RTH/DTH
DIRECTCONNECT™ Three Jaw Centering Series

- DIRECTCONNECT mounting surface (sizes 1-5)
- Shielded design (DTH) deflects chips and other particulate away from the internal components
- Large surface area of the jaws allows for use of long fingers

See Page 1.208

NEW

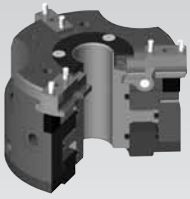
DPW
DIRECTCONNECT™ Wide Body Series



- Features our DIRECTCONNECT™ mounting pattern
- Excellent jaw support through the full body of the gripper
- Highly configurable gripper featuring multiple options and accessories
- Synchronized and non-synchronized versions available
- Each gripper is offered in 2 different strokes

See Page 1.176

PPC Series
Through Hole Gripper



- Unique through hole design
- 3 jaw concentric parallel gripper
- Shielded design protects internal components for increased life in harsh environments
- Optional safety springs, extended strokes, sensors, and high temperature seals

See Page 1.230

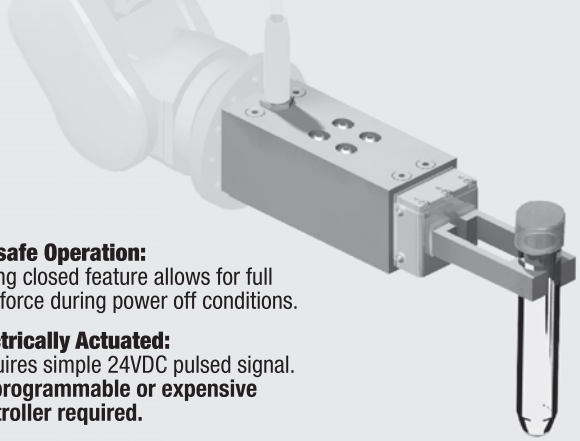
Robohand Parallel Gripper Product Selector

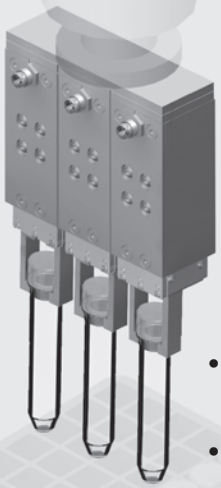
Model #	Two Jaws	Three Jaws	Stroke Range: 0 - 0.25 in. [0 - 6.3mm]	0.25 - 0.50 in. [6.3 - 12.7mm]	0.50 - 0.75 in. [12.7 - 19.1mm]	0.75 - 1.00 in. [19.1 - 25.4mm]	1.00 - 1.25 in. [25.4 - 31.8mm]	1.25 - 1.50 in. [31.8 - 38.1mm]	1.50 - 1.75 in. [38.1 - 44.5mm]	1.75 - 2.00 in. [44.5 - 50.8mm]	2.00 - 2.25 in. [50.8 - 57.1mm]	2.25 - 2.50 in. [57.1 - 63.5mm]	2.50 - 2.75 in. [63.5 - 69.8mm]	2.75 - 3.00 in. [69.8 - 76.2mm]	3.00+ [76.2mm+]	Total Grip Force Range: 1 - 10 lbs. [0.45 - 45N]	10 - 25 lbs. [45 - 111N]	25 - 50 lbs. [111 - 223N]	50 - 100 lbs. [223 - 445N]	100 - 500 lbs. [445 - 2225N]	500 - 3000 lbs. [2225 - 13350N]	Maximum Finger Length @ 60 PSI: 0 - 2 in. [0 - 50.8mm]	2 - 4 in. [50.8 - 102mm]	4 - 6 in. [102 - 152mm]	6 - 8 in. [152 - 203mm]	8 - 10 in. [203 - 254mm]	10 - 12 in. [254 - 305mm]	12 - 14 in. [305 - 356mm]	14 - 16 in. [356 - 406mm]	16 - 18 in. [406 - 457mm]	18 - 20 in. [457 - 508mm]	20 in.+ [508mm+]	Actuation Time: 0.05 - 0.1 sec.	0.1 - 0.5 sec.	0.5 - 0.75 sec.	0.75 - 1 sec.	Operating Pressure: 5 - 100 psi [0.3 - 7 bar]	20 - 100 psi [1.5 - 7 bar]	40 - 100 psi [3 - 7 bar]	50 - 100 psi [3.5 - 7 bar]	24VDC Electric Actuation	Environment: Clean Room Environment	Normal Environment	Harsh/Dirty Environment	Failsafe Operation	Inductive Sensors	Magneto Resistive Sensors	Double Acting Cylinder	Single Acting/Spring Return	Double Acting/Spring Assist	Non-Synchronous Option
RPE ELECTRIC GRIPPER		

Robohand Parallel Gripper Product Selector

Model #	Two Jaws	Three Jaws	Stroke Range: 0 - 0.25 in. [0 - 6.3mm]	0.25 - 0.50 in. [6.3 - 12.7mm]	0.50 - 0.75 in. [12.7 - 19.1mm]	0.75 - 1.00 in. [19.1 - 25.4mm]	1.00 - 1.25 in. [25.4 - 31.8mm]	1.25 - 1.50 in. [31.8 - 38.1mm]	1.50 - 1.75 in. [38.1 - 44.5mm]	1.75 - 2.00 in. [44.5 - 50.8mm]	2.00 - 2.25 in. [50.8 - 57.1mm]	2.25 - 2.50 in. [57.1 - 63.5mm]	2.50 - 2.75 in. [63.5 - 69.8mm]	2.75 - 3.00 in. [69.8 - 76.2mm]	3.00+ [76.2mm+]	Total Grip Force Range: 1 - 10 lbs. [0.45 - 45N]	10 - 25 lbs. [45 - 111N]	25 - 50 lbs. [111 - 223N]	50 - 100 lbs. [223 - 445N]	100 - 500 lbs. [445 - 2225N]	500 - 3000 lbs. [2225 - 13350N]	Maximum Finger Length @ 60 PSI: 0 - 2 in. [0 - 50.8mm]	2 - 4 in. [50.8 - 102mm]	4 - 6 in. [102 - 152mm]	6 - 8 in. [152 - 203mm]	8 - 10 in. [203 - 254mm]	10 - 12 in. [254 - 305mm]	12 - 14 in. [305 - 356mm]	14 - 16 in. [356 - 406mm]	16 - 18 in. [406 - 457mm]	18 - 20 in. [457 - 508mm]	20 in.+ [508mm+]	Actuation Time: 0.05 - 0.1 sec.	0.1 - 0.5 sec.	0.5 - 0.75 sec.	0.75 - 1 sec.	Operating Pressure: 5 - 100 psi [0.3 - 7 bar]	20 - 100 psi [1.5 - 7 bar]	40 - 100 psi [3 - 7 bar]	50 - 100 psi [3.5 - 7 bar]	70 - 150 psi [5 - 7 bar]	Environment: Clean Room Environment	Normal Environment	Harsh/Dirty Environment	Failsafe Operation	Inductive Sensors	Magneto Resistive Sensors	Double Acting Cylinder	Single Acting/Spring Return	Double Acting/Spring Assist	Non-Synchronous Option
DOUBLE WEDGE DESIGN																																																			
RP-5	•		■													■						■													•				•					•			•	•	•		
RP-10	•		■													■						■													•				•					•			•				
RP-11	•		■													■						■													•				•					•			•				
RP-12	•		■	■												■						■													•				•					•			•				
RP-15	•		■	■												■	■					■													•				•					•			•				
RP-17	•		■	■	■											■	■	■				■													•				•					•			•				
RP-18	•		■	■	■	■										■	■	■	■			■													•				•					•			•				
RP-19	•		■	■	■	■	■	■	■	■						■	■	■	■	■		■													•				•					•			•				
DOUBLE ACTING SPRING ASSIST DESIGN																																																		
RPS-11	•		■													■						■													•				•					•			•	•	•		
RPS-12	•		■	■												■						■													•				•					•			•	•	•		
RPS-15	•		■	■												■	■					■													•				•					•			•	•	•		
RPS-17	•		■	■	■											■	■	■				■													•				•					•			•	•	•		
RPS-18	•		■	■	■	■										■	■	■	■			■													•				•					•			•	•	•		
PRECISION DESIGN																																																		
GC-25	•		■	■												■	■					■														•				•					•			•		•		
GC-45	•		■	■	■											■	■	■				■														•				•					•			•		•		
GC-65	•		■	■	■	■										■	■	■	■			■														•				•					•			•		•		
GC-85	•		■	■	■	■	■									■	■	■	■	■		■														•				•					•			•		•		
GC-105	•		■	■	■	■	■	■	■							■	■	■	■	■		■														•				•					•			•		•		
DIRECTCONNECT WIDE BODY DESIGN																																																		
DPW-250M-1	•		■	■												■						■													•				•					•			•	•			•
DPW-250M-2	•		■	■	■											■						■													•				•					•			•	•			•
DPW-375M-1	•		■	■	■											■	■					■													•				•					•			•	•			•
DPW-375M-2	•		■	■	■	■	■									■	■					■													•				•					•			•	•			•
DPW-500M-1	•		■	■	■	■										■	■	■				■													•				•					•			•	•			•
DPW-500M-2	•		■	■	■	■	■	■	■	■	■	■				■	■	■				■													•				•					•			•	•			•
LARGE FORMAT WIDE BODY DESIGN																																																		
RPW-625-1	•		■	■	■	■	■	■	■	■						■	■	■	■			■														•				•					•			•		•		•
RPW-625-2	•		3.5 in. [89mm] ▶													■	■	■	■			■														•				•					•			•		•		•
RPW-750	•		4.5 in. [114mm] ▶													■	■	■	■			■														•				•					•			•		•		•
RIM GRIPPER																																																		
X2040901	•		7.87 in. [200mm] ▶													■	■	■	■			25 in. [635mm] ▶													1.3 sec.				•					•			•		•		•
X2041234	•		7.87 in. [200mm] ▶													■	■	■	■			36 in. [914mm] ▶													1.5 sec.				•					•			•		•		•
X2050204	•		3.93 in. [100mm] ▶													■	■	■	■			32 in. [813mm] ▶																	•					•			•		•		•
"B-SERIES" INDUSTRIAL GRIPPERS																																																		
BPW-1600	•		6.3 [160mm] ▶													■	■	■	■	■		■													1.75 sec. ▶				•					•			•	•	•	•	•
BPW-2000	•		7.8 [200mm] ▶													■	■	■	■	■		■													3.0 sec. ▶				•					•			•	•	•	•	•
BRP-20	•		■	■	■											■	■	■	■	■		■														•								•			•	•	•		
BRP-21	•		■	■	■											■	■	■	■	■		■														•								•			•	•	•		
BRP-21-D	•		■	■	■	■	■	■	■	■						■	■	■	■	■		■														•								•			•	•	•		
BPG-160	•		6.3 [160mm] ▶													■	■	■	■	■		■														•								•			•	•	•		
RTH/DTH SHIELDED 3 JAW DESIGN																																																		
RTH/DTH-1	•		■													■	■					■													•				•					•			•	•	•		
RTH/DTH-1-L	•		■	■												■	■	■				■													•				•					•			•	•	•		
RTH/DTH-2	•		■	■												■	■	■				■													•				•					•			•	•	•		
RTH/DTH-2-L	•		■	■	■											■	■	■	■			■													•				•					•			•	•	•		
RTH/DTH-3	•		■	■												■	■	■				■													•				•					•			•	•	•		
RTH/DTH-3-L	•		■	■	■											■	■	■	■			■													•				•					•			•	•	•		
RTH/DTH-4	•		■	■												■	■	■				■													•				•					•			•	•	•		
RTH/DTH-4-L	•		■	■	■											■	■	■	■			■													•				•					•			•	•	•		
RTH/DTH-5	•		■	■												■	■	■				■													•				•					•			•	•	•		
RTH/DTH-5-L	•		■	■	■											■	■	■	■			■													•				•					•			•	•	•		
RTH-6	•		■	■												■	■	■				■													•				•					•			•	•	•		
RTH-6-L	•		■	■	■											■	■	■	■			■													•				•					•			•	•	•		
RTH-7	•		■	■	■											■	■	■	■	■		■													•				•					•			•	•	•		
RTH-7-L	•		■	■	■	■	■									■	■	■	■	■		■													•				•					•			•	•	•		
RTH-8	•		■	■	■											■	■	■	■	■		■													1.7 sec. ▶				•					•			•	•	•		
RTH-8-L	•		■	■	■	■	■	■	■	■	■	■	■	■		■	■	■	■	■		■													1.7 sec. ▶				•					•			•	•	•		
PPC THROUGH HOLE DESIGN																																																		
PPC-12	•		■	■												■	■					■													•				•					•			•	•	•		
PPC-12-C	•		■	■	■											■	■	■				■													•				•					•			•	•	•		
PPC-25	•		■	■												■	■					■													•				•					•			•	•	•		
PPC-25-C	•		■	■	■											■	■	■				■													•				•					•			•	•	•		
PPC-34	•		■	■												■	■					■													•				•					•			•	•	•		
PPC-34-C	•		■	■	■											■	■	■				■													•				•					•			•	•	•		

RPE Parallel Gripper-Electric Gripper Series





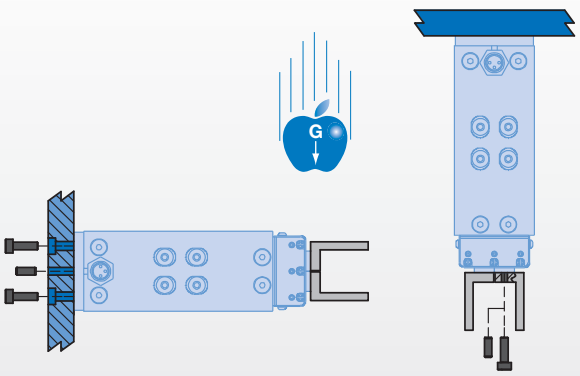
- **Failsafe Operation:**
  Spring closed feature allows for full grip force during power off conditions.
- **Electrically Actuated:**
  Requires simple 24VDC pulsed signal. **No programmable or expensive controller required.**
- **Sensing:**
  Adjustable inductive proximity sensors available.
- **Low System Impact:**
  Easily integrated into current engineering and manufacturing processes.
- **Miniature size:**
  Compact design allows for gripping small parts in small spaces.

- **Precision applications:**
  Preloaded "Dual-V" roller bearings eliminate side play for excellent part position repeatability.
- **Delicate part handling:**
  Low friction mechanism allows for repeatable gripping forces for holding delicate parts. Grip force is constant throughout stroke.
- **Clean room suitable:**
  A corrosion resistant shield protects the drive and bearing mechanism. All internal components are lubricated with Krytox™ grease.
- **Harsh environments:**
  All moving components are located within the corrosion resistant cover.

Patent Pending.
The RPE is CE marked.

Mounting Information:

Gripper can be mounted and operated in any orientation



Body mounts with screws and locates with slip fit dowel pins for accuracy

Fingers attach to jaws with screws and locate with dowel pins

Technical Specifications:

Product Specifications

Voltage	**24 VDC**
Power Max.	**40 W**
Operating Temperature	**5° / 50° C (40° / 120°F)**
Protection Class	**IP54**
Clean Room	**100**
Clean Room with Scavenge Port*	**10**

*Contact Tech Support.

Maintenance Specifications

Field Repairable	**Yes**

Application Restrictions

- Timing, power and load beyond specifications
- Suitable for external gripping only

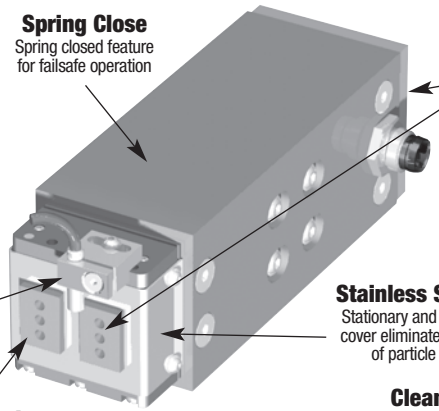
Product Features

Quality Components
Body made from aluminum alloy with Teflon™ impregnated hardcoat anodize. Jaws, housing, and end cap nickel plated for use in medical parts handling applications.

Energy Efficient
Power is only required for 50 msec to open and close the gripper, no power is required to keep the part gripped or to keep the gripper fully opened.

Adjustable Preloaded Bearings
Adjustable preload screw allows for adjustment of preload on roller bearings. Bearings are preloaded for maximum support and zero side play.

Spring Close
Spring closed feature for failsafe operation



Slip Fit Dowel Pin Holes
Located in body and jaws

Sensor Option
Reads position of jaw (sold separately- see "How to order" Section for more info)

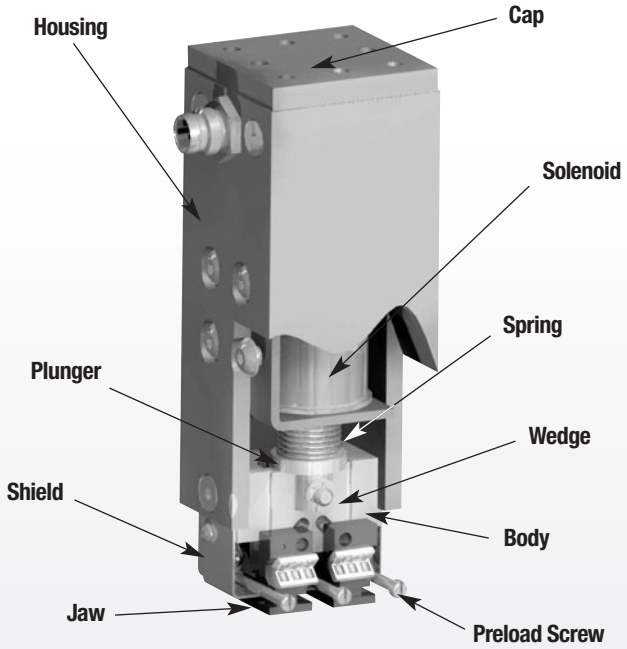
Stainless Steel Cover
Stationary and non-contacting cover eliminates the possibility of particle generation

Hardened Plated Jaws
For wear resistance and longer life

Roller Bearings
Patented Dual-"V" roller bearings provide low friction rolling motion and maximum rigidity for fingers

Clean Room
Krytox™ clean-room grade lubricant standard. FDA approved lubricants available. Vacuum scavenge ports are available

Operating Principle



- A short power pulse releases the latching solenoid's plunger, allowing the spring to drive the wedge mechanism.
- The spring driven wedge drives the jaws towards one another to grip the part. No power is required to maintain grip force.
- To open the gripper, a short power pulse to the solenoid retracts the plunger to the latched position, which opens the jaws. No power is required to maintain the open position.
- Suitable for external gripping only.

U.S. Patent # 5,529,359. Other Patents Pending.

Style-RPE
Size -100M

Style:	**RPE-100M**
Stroke:	4 mm (0.16 in)
Grip Force:	5 N (1.1 lbs)
Weight:	226 g (0.50 lbs)

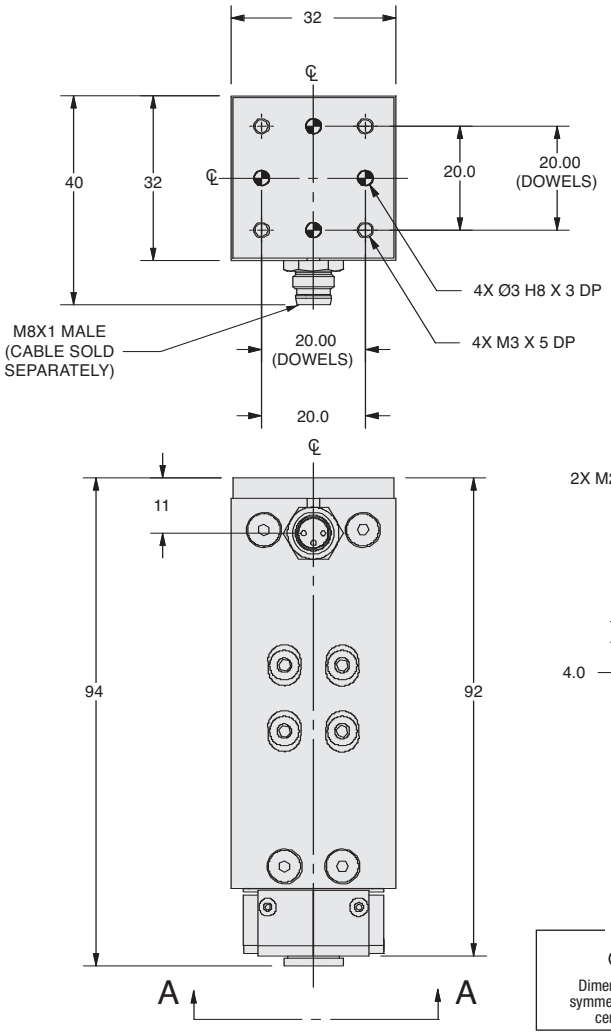
See Page 1.8

Style-RPE
Size -101M

Style:	**RPE-101M**
Stroke:	4 mm (0.16 in)
Grip Force:	5 N (1.1 lbs)
Weight:	226 g (0.50 lbs)

See Page 1.8

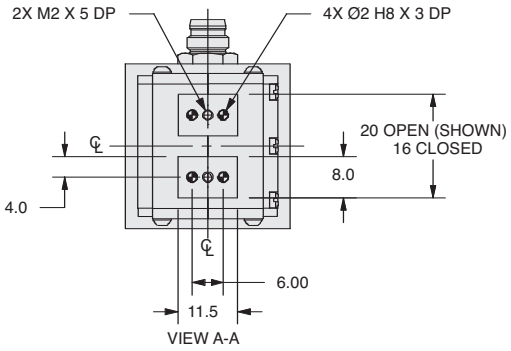
PARALLEL GRIPPER RPE-100M/-101M
E-GRIPPER SERIES



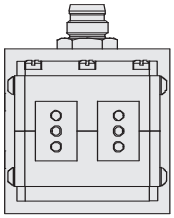
Specifications	RPE-100M/-101M	
Maximum Finger Length	50 mm	(1.9 in)
Stroke	4 mm	(0.16 in)
Gripping Force in Closing	5 N	(1.1 lbs)
Closing Time/Opening Time	0.1 sec	(0.1 sec)
Repeatability	± 0.02 mm	(0.0008 in)
Accuracy	± 0.05 mm	(0.002 in)
Voltage	24 VDC	
Power Max.	40 Watts	
Min./Max Operating Temperature	5° / 50° C	(40° / 120° F)
Protection Class	IP54	
Clean Room	100	
Clean Room with Scavenge*	10	
Weight	226 g	(0.50 lbs)

*Contact Tech Support.

-101M



-100M

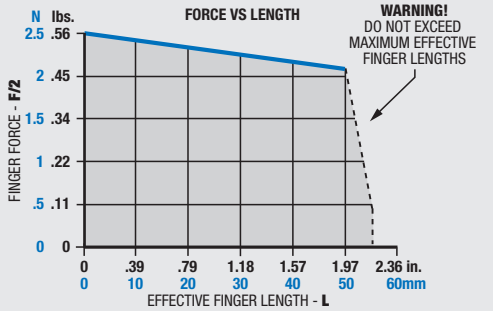


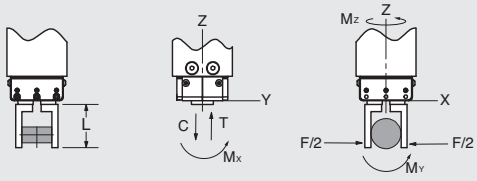
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline | Third Angle Projection | All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.013mm | Metric Threads Course Pitch

Metric [mm]
[0.] = [±.25]
[0.0] = [±.13]
[0.00] = [±.013]

Loading Information





Loading Capacity†

	Static		Dynamic	
Maximum Tensile **T**	59 N	(13 lbs)	20 N	(4.5 lbs)
Maximum Compressive **C**	59 N	(13 lbs)	20 N	(4.5 lbs)
Maximum Moment M_x	0.75 Nm	(6.6 lbf-in)	0.3 Nm	(2.7 lbf-in)
Maximum Moment M_y	1.2 Nm	(10.6 lbf-in)	0.4 Nm	(3.5 lbf-in)
Maximum Moment M_z	0.75 Nm	(6.6 lbf-in)	1.1 Nm	(9.7 lbf-in)

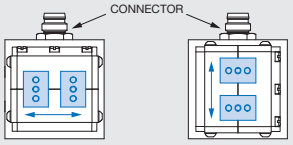
†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | GRIPPING ORIENTATION

RPE - 100M

GRIPPING ORIENTATION
-100M Gripping Direction Perpendicular to Connector
-101M Gripping Direction In-line to Connector

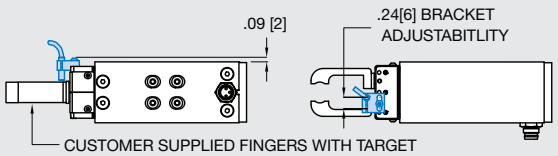


-100M **-101M**

ACCESSORIES*

Inductive Sensor Mounting Kit (mounts one sensor)	**OSMK-130**	**1 or 2**
NPN Inductive Sensor with Quick Disconnect*	**OISN-019**	**1 or 2**
PNP Inductive Sensor with Quick Disconnect*	**OISP-019**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1, 2, or 3†**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1, 2, or 3†**

*Sensor and cables sold separately. †Power cable plus 1 or 2 sensor cables.

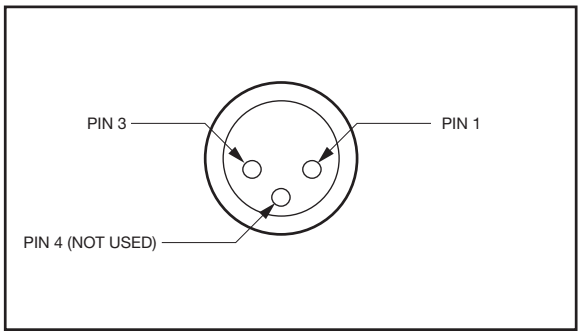


Installation and Operation:

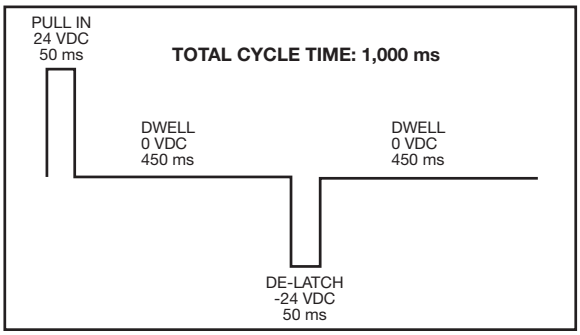
1. Mount fingers (customer supplied) to gripper jaws using dowel pins and threaded fasteners. See dimensional drawing for hole sizes. Use Loctite® 242 threadlocker or equivalent.
2. Mount gripper using dowel pins and threaded fasteners. Gripper can be mounted and operated in any orientation. See dimensional drawing for mounting hole pattern and sizes. Use Loctite® 242 threadlocker or equivalent.
3. The following instructions apply to standard operation and require a 24VDC power supply:
   To open gripper, connect positive lead of power supply to Pin 1 of the connector and negative lead to Pin 3 of the connector. See below for pin orientation. Pulse for 50msec maximum as shown in Timing Diagram. After 50 msec pulse, allow 450msec minimum dwell time. To close gripper, connect positive lead of power supply to Pin 3 of connector and negative lead to Pin 1 of connector. Pulse for 50msec maximum as shown in Timing Diagram. After 50msec pulse, allow 450msec minimum dwell time.

WARNING:

- Operating gripper outside of power voltages and pulse times will cause damage and void warranty
- Do not insert any foreign objects (tools, body parts, etc) between gripper fingers when power is applied.
- Disconnect power from gripper before performing maintenance or making adjustments.
- Do not apply power to gripper for more than 100msec maximum. Observe 10% duty cycle at all times.



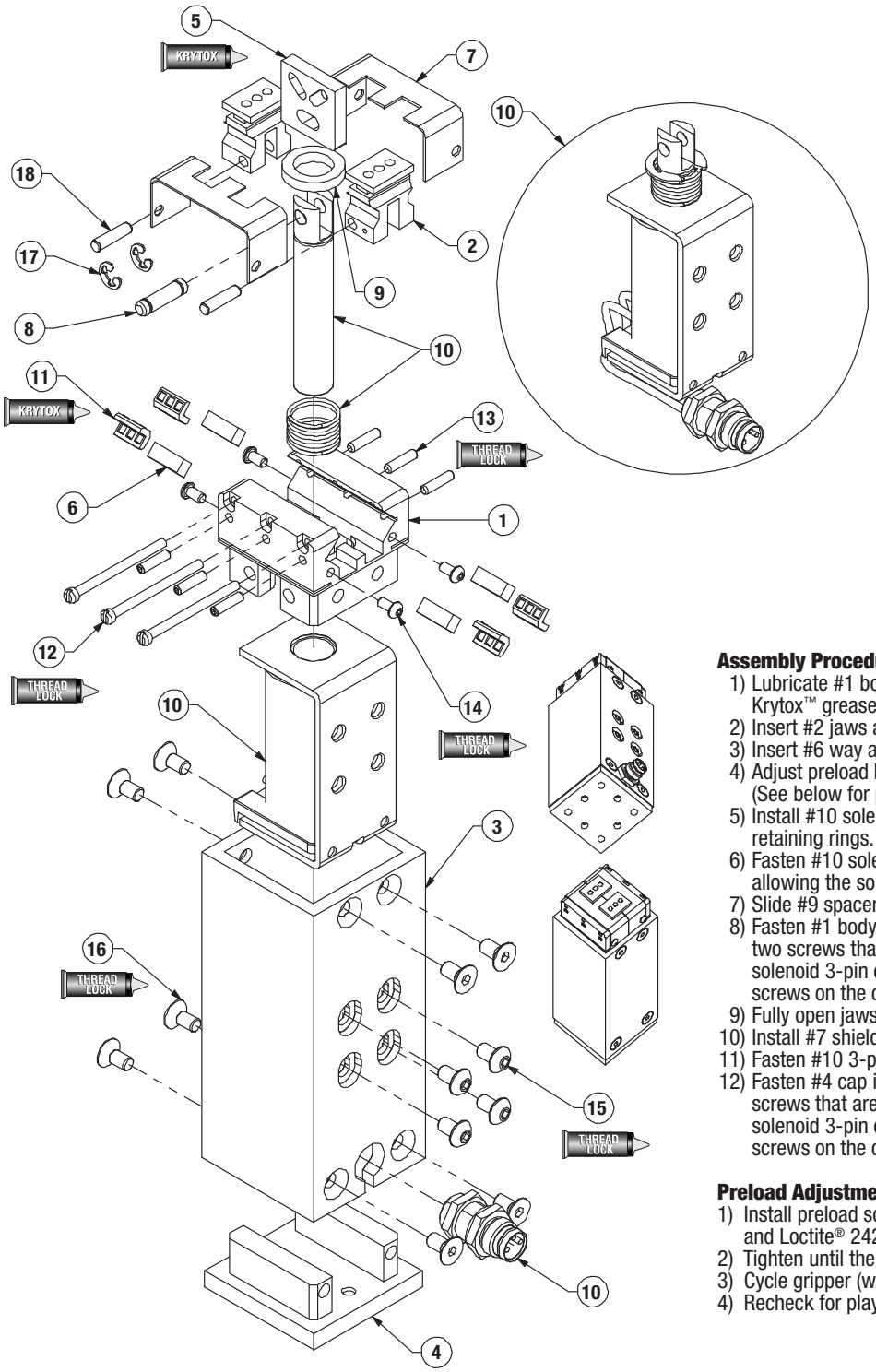
PIN ORIENTATION



TIMING DIAGRAM

NOTE: The RPE is CE marked.

RPE Series Exploded View



Item	Qty	Name
01	1	Body
02	2	Jaw
03	1	Housing
04	1	Cap
05	1	Wedge
06	4	Way
07	2	Shield
08	1	Clevis Pin
09	1	Spacer
10	1	Solenoid
11	4	Kit, Roller Bearing and Cage
12	3	Preload Screw
13	6	Set Screw-Way Locating
14	4	BHCS-Shield Mounting Screw
15	4	BHCS Solenoid Mounting Screw
16	8	FHCS-Housing Mounting Screw
17	2	Retaining Ring
18	2	Dowel Pin

NOTE: Contact the DE-STA-CO Customer Service for a complete spare parts list with order numbers and prices.

Assembly Procedure

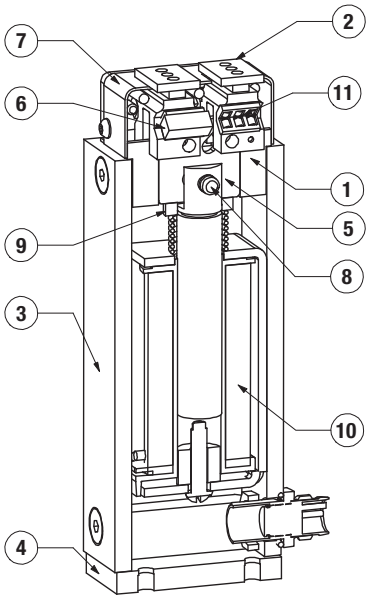
1) Lubricate #1 body, #5 wedge, and #11 bearings using Krytox™ grease.
2) Insert #2 jaws and #5 wedge into body.
3) Insert #6 way and #11 bearings into each end of the body.
4) Adjust preload by adjusting #12 preload screws. (See below for procedure)
5) Install #10 solenoid plunger with #8 clevis pin and #17 retaining rings.
6) Fasten #10 solenoid to housing. Do not tighten yet, allowing the solenoid to freely move within slots.
7) Slide #9 spacer and #10 solenoid spring onto plunger.
8) Fasten #1 body into #3 housing. Completely fasten the two screws that are located on the same side as the #10 solenoid 3-pin connector then fasten the two remaining screws on the opposite side.
9) Fully open jaws and tighten #15 screws securely.
10) Install #7 shields to gripper.
11) Fasten #10 3-pin connector.
12) Fasten #4 cap into housing. Completely fasten the two screws that are located on the same side as the #10 solenoid 3-pin connector then fasten the two remaining screws on the opposite side.

Preload Adjustment Procedure

1) Install preload screws (12) with Loctite® 7649 primer and Loctite® 242 thread locker on threads.
2) Tighten until there is no side play in the jaws.
3) Cycle gripper (w/finger assembly)
4) Recheck for play in jaws & tighten or loosen as needed.

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon™ Based Grease | GLUE Super Bonder | Third Angle Projection

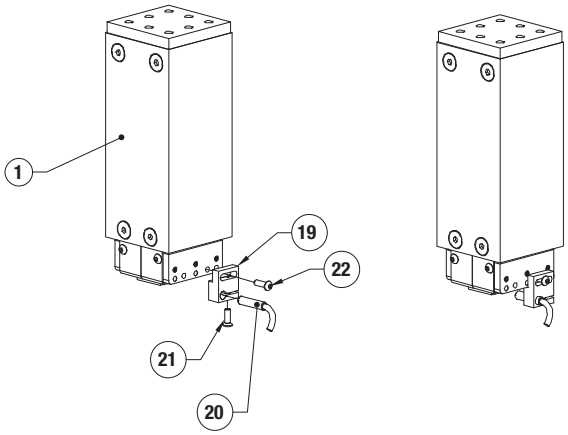
RPE Series Assembled View



Item	Qty	Name
01	1	Body
02	2	Jaw
03	1	Housing
04	1	Cap
05	1	Wedge
06	4	Way
07	2	Shield
08	1	Clevis Pin
09	1	Spacer
10	1	Solenoid
11	4	Kit, Roller Bearing and Cage

NOTE: Contact the DE-STA-CO Customer Service for a complete spare parts list with order numbers and prices.

Accessory Installation & Adjustment Instructions

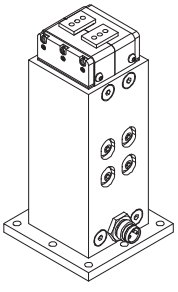


Installation*
1) Install sensors as shown.
2) Adjust for desired end of stroke detection.

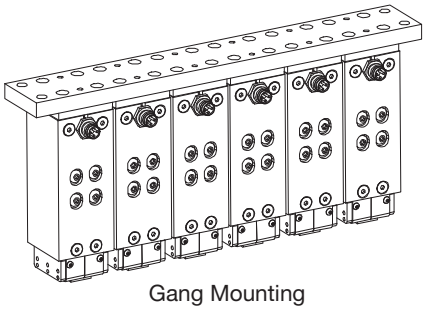
* Fingers should be designed to act as target for inductive sensor. Sensing range is 0.031 [0.8]. The center line of the sensor diameter is located 0.094 [2.4] off of jaw mounting surface.

Fingers supplied by customer.

Flange Mounting Plate, Gang Mounting and more...



Flange Mounting Plate

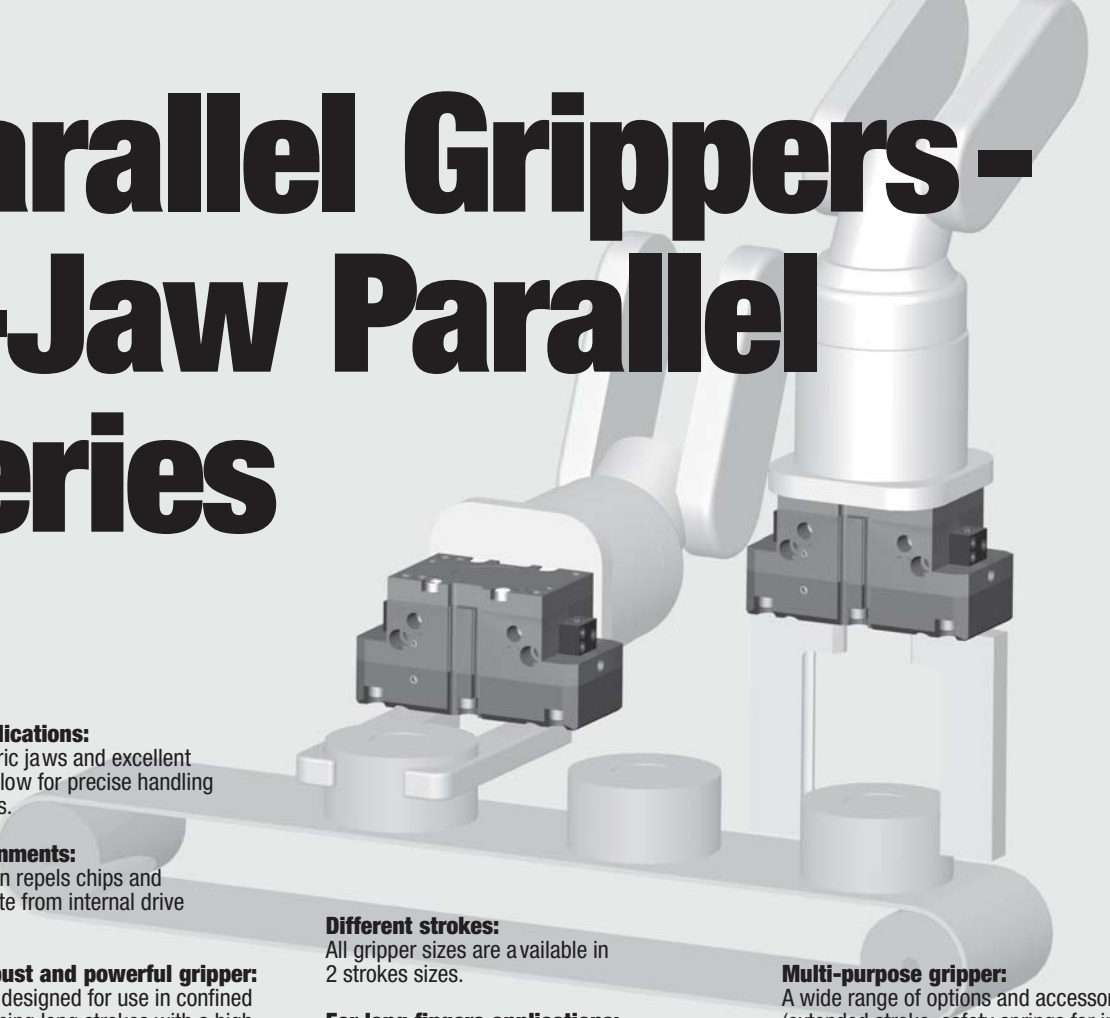


Gang Mounting

Drawings shown are for concept only. Contact DE-STA-CO Tech Support with project requirements.

SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon™ Based Grease
GLUE Super Bonder
Third Angle Projection

Parallel Grippers - 2-Jaw Parallel Series



Machine applications:
The 2 symmetric jaws and excellent repeatability allow for precise handling of various parts.

Harsh environments:
Shielded design repels chips and other particulate from internal drive mechanism.

Compact, robust and powerful gripper:
This gripper is designed for use in confined spaces, combining long strokes with a high grip force. Optional safety springs retain the components, should the air supply fail or to increase grip force.

Different strokes:
All gripper sizes are available in 2 strokes sizes.

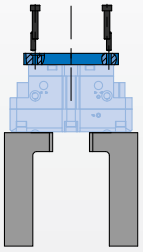
For long fingers applications:
The large surface area of the jaws, coupled with the encapsulated bottom case design allows for long fingers applications.

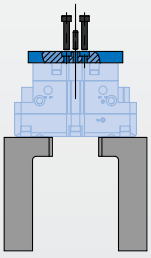
Multi-purpose gripper:
A wide range of options and accessories (extended stroke, safety springs for internal or external gripping, magneto resistive or inductive sensors) allow these grippers to be used in a wide number of applications.

Mounting Information:

Grippers can be mounted & operated in any orientation

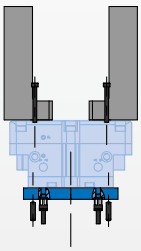
Gripper is located using 2 dowel pins and assembled from the top with 4 screws.





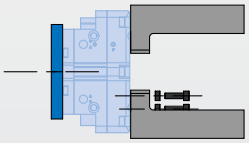
RDH DIRECTCONNECT Mounting
Gripper is located using 2 slip fit dowel pins and assembled from the top with 4 screws.

Gripper can also be assembled from the bottom with 4 through body screws.



Gripper is protected from debris when operated upside down.

Gripper can be operated utilizing top manifold air ports



Fingers are located on jaws with 2 dowel sleeves (provided) and assembled with 2 screws.

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range without Springs	**30-100 psi**	**2-7 bar**
Cylinder Type	**Double Acting or Double Acting Spring Assist or Single Acting Spring Return**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate:		
Double Acting	**4-way, 2-position**	
Single Acting (**-C** or **-O** Option)	**3-way, 2-position**	
Air Quality Requirements		
Air Filtration	**40 Micron or Better**	
Air Lubrication	**Not Necessary***	
Air Humidity	**Low Moisture Content (dry)**	
Temperature Operating Range		
Buna-N Seals (Standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (Optional)	**-20°~300° F**	**-30°~150° C**
Maintenance Specifications†		
Expected Life		
Normal Application	**5 million cycles**	
w/ Preventative Maintenance	**10+ million cycles***	
Field Repairable	**Yes**	
Seal Repair Kits Available	**Yes**	

*Addition of lubrication will greatly increase service life
†See Maintenance Section

DIRECTCONNECT™

Product Features

Viton® Seals (-V) Option
Optional Viton® seals for high temperatures (-20°F to +300°F)

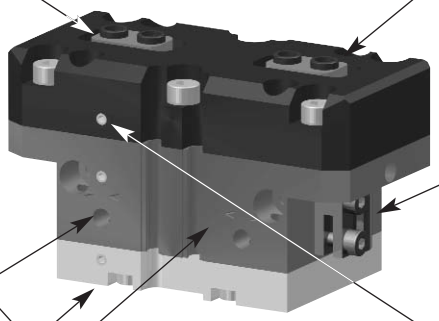
Standard and Extended Stroke (-L)
Each model of gripper is available in two stroke lengths

Multiple Mounting Locations
Gripper can be mounted from the top or bottom

Finger Locating Sleeves
For precise finger mounting (standard)

Shielded Design
Gripper body is shielded to repel chips and other particulate from internal drive mechanism

Jaw Components
Hardened and precision ground steel for minimum jaw play with hard plating for wear resistance and long life



Multiple Sensing Capabilities
Up to 4 magneto resistive sensors (magnets built-in) or inductive sensors available [except **-1**]

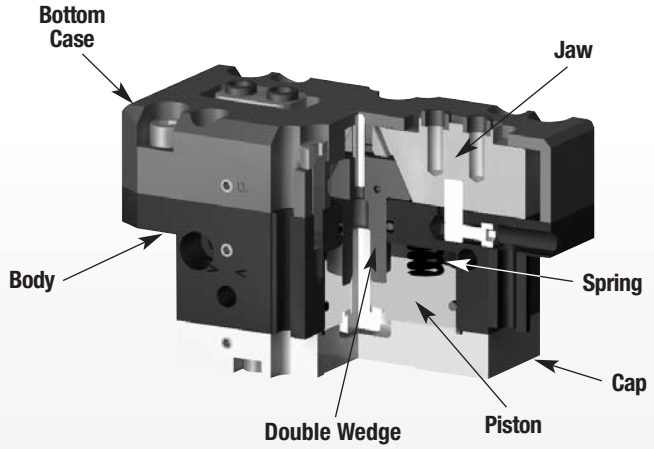
Multiple Air Ports
Side or top air ports (top ports require O-ring)

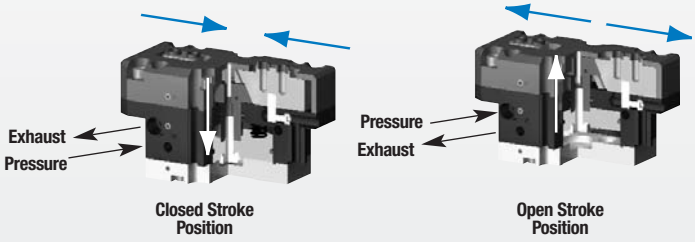
Optional Spring Assist
Optional spring assist retains the component should the air supply fail, to assist the gripper for internal (**-O**) or external (**-C**) gripping, or in single acting or spring assist mode

DIRECTCONNECT™ Mounting Patterns
DIRECTCONNECT™ tapped & dowel mounting surface available on **DDH** version [except **-6M, 7M, 8M**]

Standard Purge/ Scavenge Port
Used with a vacuum for clean room environments or positive pressure for harsh environments

Operating Principle





- A double acting piston is connected to a double sided wedge.
- The double wedge slides into a slot in each of the ja ws converting the vertical motion of the wedge into a horizontal motion of the ja ws.
- Each jaw moves within the bottom case, the closed design increases the rigidity and permits the use of longer fingers. The large surface area of the guiding system allows for higher moments loads.
- This gripper is suitable for internal or external gripping using single or double acting mode.

Style -RDH/DDH Parallel Gripper

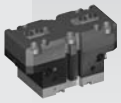
Size -1M

	RDH/DDH-1M		RDH/DDH-1M-L	
Total Stroke:	0.16 in.	4 mm	0.31 in.	8 mm
Grip Force:	156 lbs	693 N	102 lbs	452 N
Weight:	0.4 lbs	0.19 Kg	0.4 lbs	0.19 Kg

See Page 1.14

Style -RDH/DDH Parallel Gripper

Size -2M

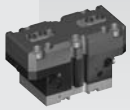


	RDH/DDH-2M		RDH/DDH-2M-L	
Total Stroke:	0.23 in.	6 mm	0.47 in.	12 mm
Grip Force:	226 lbs	1006 N	149 lbs	661 N
Weight:	0.9 lbs	0.39 Kg	0.9 lbs	0.39 Kg

See Page 1.16

Style -RDH/DDH Parallel Gripper

Size -3M

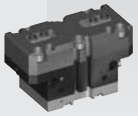


	RDH/DDH-3M		RDH/DDH-3M-L	
Total Stroke:	0.31 in.	8 mm	0.62 in.	16 mm
Grip Force:	379 lbs	1683 N	246 lbs	1094 N
Weight:	1.8 lbs	0.82 Kg	1.8 lbs	0.82 Kg

See Page 1.18

Style -RDH/DDH Parallel Gripper

Size -4M

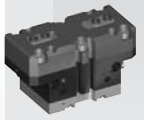


	RDH/DDH-4M		RDH/DDH-4M-L	
Total Stroke:	0.39 in.	10 mm	0.78 in.	20 mm
Grip Force:	628 lbs	2789 N	408 lbs	1814 N
Weight:	3.1 lbs	1.43 Kg	3.1 lbs	1.43 Kg

See Page 1.20

Style -RDH/DDH Parallel Gripper

Size -5M

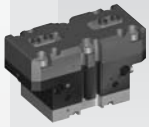


	RDH/DDH-5M		RDH/DDH-5M-L	
Total Stroke:	0.51 in.	13 mm	1.01 in.	26 mm
Grip Force:	1037 lbs	4609 N	675 lbs	2999 N
Weight:	6.1 lbs	2.75 Kg	6.1 lbs	2.75 Kg

See Page 1.22

Style -RDH Parallel Gripper

Size -6M

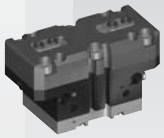


	RDH-6M		RDH-6M-L	
Total Stroke:	0.62 in.	16 mm	1.25 in.	32 mm
Grip Force:	1944 lbs	8640 N	1265 lbs	5623 N
Weight:	12.7 lbs	5.77 Kg	12.7 lbs	5.77 Kg

See Page 1.24

Style -RDH Parallel Gripper

Size -7M

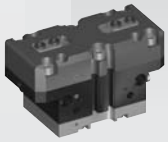


	RDH-7M		RDH-M-L	
Total Stroke:	0.98 in.	25 mm	1.95 in.	50 mm
Grip Force:	2822 lbs	12542 N	1830 lbs	8135 N
Weight:	24.8 lbs	11.25 Kg	24.8 lbs	11.25 Kg

See Page 1.26

Style -RDH Parallel Gripper

Size -8M

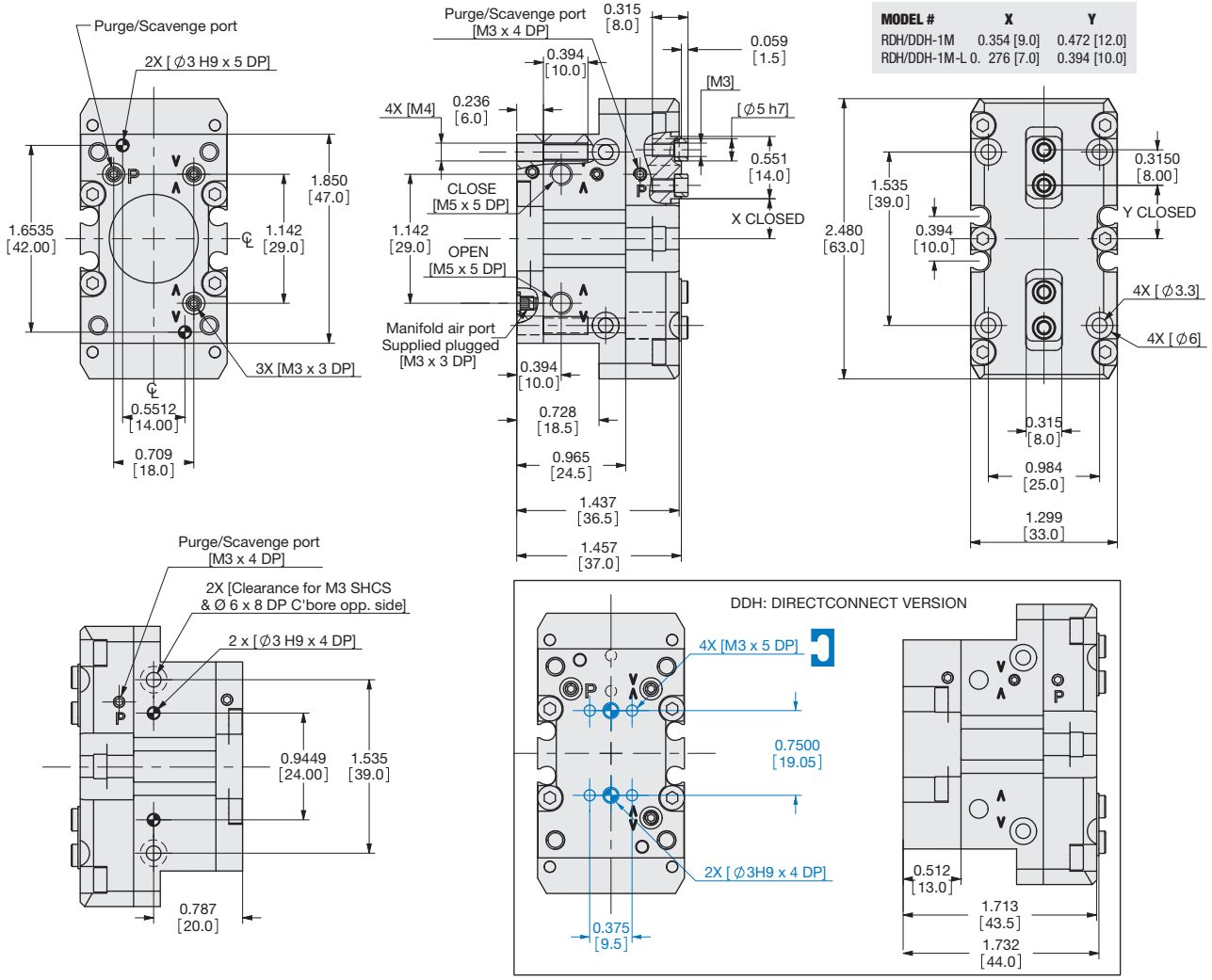


	RDH-8M		RDH-8M-L	
Total Stroke:	1.37 in.	35 mm	2.73 in.	70 mm
Grip Force:	6300 lbs	28002 N	4076 lbs	18115 N
Weight:	71.1 lbs	32.3 Kg	71.1 lbs	32.3 Kg

See Page 1.28

PARALLEL GRIPPER RDH/DDH-1M
2-JAW PARALLEL SERIES

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SIZE | METRIC | SPRING ASSIST

[ ]-1M-[L]-[ ]-[V]

EXTENDED STROKE | VITON SEALS®

BASIC MODEL	**RDH**	Without DIRECTCONNECT Mounting Pattern
	DDH	With DIRECTCONNECT Mounting Pattern
SIZE	**1**	
METRIC	**M**	
EXTENDED STROKE	**__**	0.16" [4mm] Leave Blank (standard)
	L	0.32" [8mm]
SPRING	**C**	Spring Closed
	O	Spring Open
	__	Leave Blank. No Spring Option (standard)
VITON® SEALS	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DDH-1M-L-C-V

Ex: DDH-1M DIRECTCONNECT Parallel Gripper, Metric, 8mm Extended Stroke, Spring Closed, Viton® Seals

SENSOR ACCESSORIES*

PNP Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSP-017**	**1 or 4**
NPN Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSN-017**	**1 or 4**
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disc*	**OHSP-011**	**1 or 4**
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disc*	**OHSN-011**	**1 or 4**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 4**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 4**

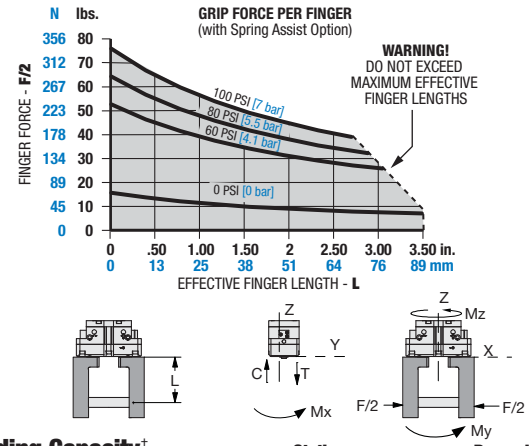
PNEUMATIC ACCESSORIES

Buna-N Seal Repair Kit	**SLKT-416**	**1**
Buna-N Rear Inlet Seal Repair Kit	**SLKT-363**	**1**
Viton® Seal Repair Kit	**SLKT-416V**	**1**
Viton® Rear Inlet Seal Repair Kit	**SLKT-363V**	**1**
M5 Adjustable Flow Control	**VLVF-008**	**1 or 2**

*Sensor and cable sold separately.

DIRECTCONNECT™

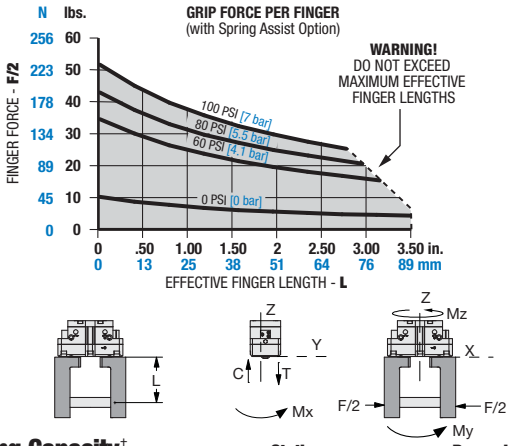
RDH/DDH-1M Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	134 lbs. [594 N]	17 lbs. [74 N]
Maximum Compressive **C**	175 lbs. [779 N]	17 lbs. [74 N]
Maximum Moment $\mathbf{M_X}$	159 in.-lbs. [18 Nm]	18 in.-lbs. [2 Nm]
Maximum Moment $\mathbf{M_Y}$	204 in.-lbs. [23 Nm]	18 in.-lbs. [2 Nm]
Maximum Moment $\mathbf{M_X}$	124 in.-lbs. [14 Nm]	18 in.-lbs. [2 Nm]

†Capacities are per set of jaws and are not simultaneous

RDH/DDH-1M-L Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	121 lbs. [540 N]	11 lbs. [48 N]
Maximum Compressive **C**	159 lbs. [708 N]	11 lbs. [48 N]
Maximum Moment $\mathbf{M_X}$	142 in.-lbs. [16 Nm]	9 in.-lbs. [1 Nm]
Maximum Moment $\mathbf{M_Y}$	168 in.-lbs. [19 Nm]	9 in.-lbs. [1 Nm]
Maximum Moment $\mathbf{M_X}$	106 in.-lbs. [12 Nm]	9 in.-lbs. [1 Nm]

†Capacities are per set of jaws and are not simultaneous

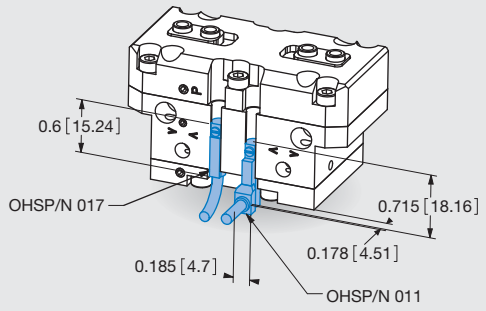
Specifications

Total Rated Grip Force, **F** @ 100 psi [7 bar]:		
Without Spring Assist	125 lbs.	555 N
Without Spring Assist **-L**	81 lbs.	361 N
With Spring Assist	156 lbs.	693 N
With Spring Assist **-L**	102 lbs.	452 N
Total Stroke:		
Standard	0.16 in.	4 mm
Extended **-L**	0.32 in.	8 mm
Weight (RDH/DDH)	0.4/0.5 lbs.	0.19/0.21 Kg
Pressure Range without Spring	30-100 psi	2-7 Bar
Pressure Range with Spring	50-100 psi	3.5-7 Bar

Specifications (cont.)

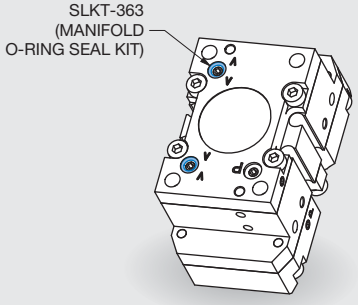
Max. Vacuum for Scavenge Port	8 in. Hg	20 mm Hg
Max. Pressure for Purge Port	30 psi	2.1 Bar
Cylinder Surface	0.9 in^2.	5.8 cm^2
Displacement	0.31 in^3.	5 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Actuation (open/close)	0.06 sec./0.06 sec.	
Accuracy	±0.0016 in.	±0.04 mm
Repeatability	±0.001 in.	±0.02 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Accessory Mounting Technical Data



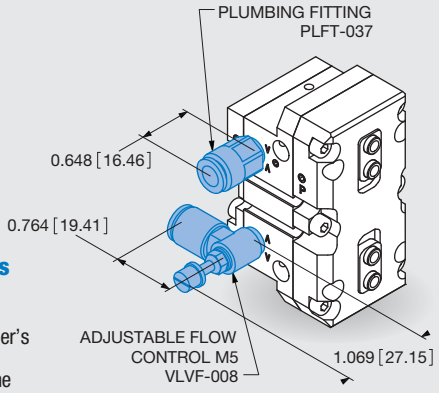
Magneto Resistive Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M Quick Disconnect mating cable (order separately)



Manifold O-Ring Seals

- Used to seal top air ports and purge/scavenge port
- No C'bore holes in customer's mounting plate required (C'bore are machined in the gripper's body)
- Seals in manifold kit are Buna-N (Viton® seal kit SLKT-363V)



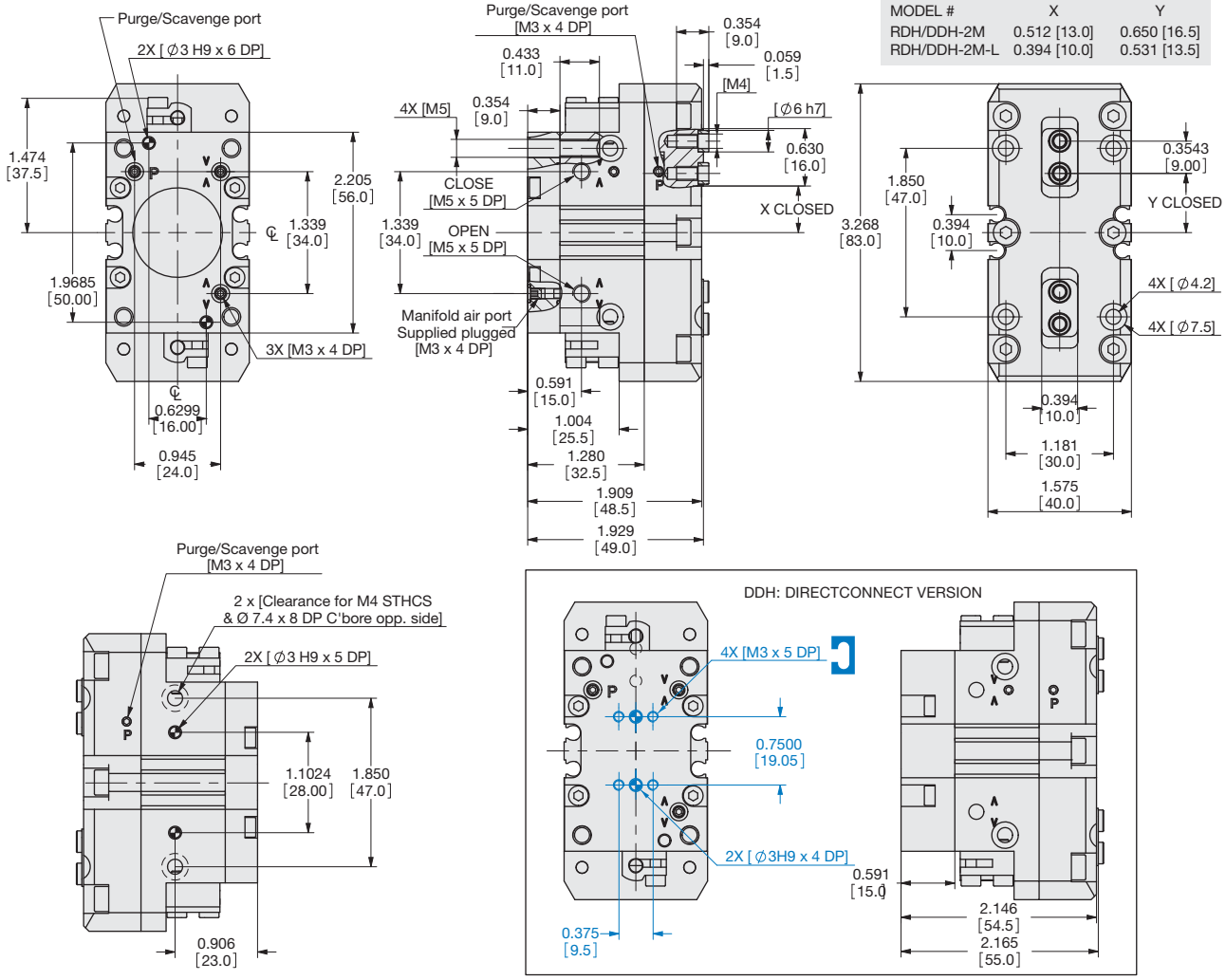
Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
  - For side air port location
  - Top air port are plugged as standard

DIRECT CONNECT™

PARALLEL GRIPPER RDH/DDH-2M
2-JAW PARALLEL SERIES

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SIZE | METRIC | SPRING ASSIST

[ ]-2M-[L]-[ ]-[V]

EXTENDED STROKE | VITON SEALS®

BASIC MODEL	**RDH**	Without DIRECTCONNECT Mounting Pattern
	DDH	With DIRECTCONNECT Mounting Pattern
SIZE	**2**	
METRIC	**M**	
EXTENDED STROKE	**__**	0.24" [6mm] Leave Blank (standard)
	L	0.47" [12mm]
SPRING	**C**	Spring Closed
	O	Spring Open
	__	Leave Blank. No Spring Option (standard)
VITON® SEALS	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DDH-2M-L-C-V

Ex: DDH-2M DIRECTCONNECT Parallel Gripper, Metric, 12mm Extended Stroke, Spring Closed, Viton® Seals

SENSOR ACCESSORIES*

4mm PNP Inductive Sensor w/ M8 Quick Disconnect*	**OISP-014**	**1 or 2**
4mm NPN Inductive Sensor w/ M8 Quick Disconnect*	**OISN-014**	**1 or 2**
PNP Magneto Resistive Sensor Short Barrel w/ M8 Qk Disc*	**OHSP-017**	**1 or 4**
NPN Magneto Resistive Sensor Short Barrel w/ M8 Qk Disc*	**OHSN-017**	**1 or 4**
PNP Magneto Resistive Sensor (90° barrel) w/ M8 Qk. Disc*	**OHSP-011**	**1 or 4**
NPN Magneto Resistive Sensor (90° barrel) w/ M8 Qk. Disc*	**OHSN-011**	**1 or 4**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 4**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 4**

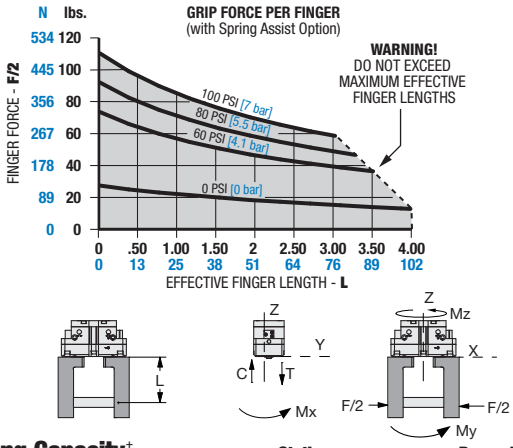
PNEUMATIC ACCESSORIES

Buna-N Seal Repair Kit	**SLKT-417**	**1**
Buna-N Rear Inlet Seal Repair Kit	**SLKT-363**	**1**
Viton® Seal Repair Kit	**SLKT-417V**	**1**
Viton® Rear Inlet Seal Repair Kit	**SLKT-363V**	**1**
M5 Adjustable Flow Control	**VLVF-008**	**1 or 2**

*Sensor and cable sold separately.

DIRECTCONNECT™

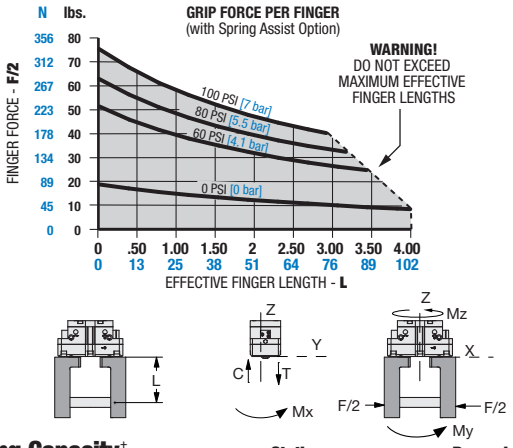
RDH/DDH-2M Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	191 lbs. [849 N]	18 lbs. [81 N]
Maximum Compressive **C**	248 lbs. [1103 N]	18 lbs. [81 N]
Maximum Moment **Mx**	319 in.-lbs. [36 Nm]	27 in.-lbs. [3 Nm]
Maximum Moment **My**	451 in.-lbs. [51 Nm]	35 in.-lbs. [4 Nm]
Maximum Moment **Mx**	283 in.-lbs. [32 Nm]	35 in.-lbs. [4 Nm]

†Capacities are per set of jaws and are not simultaneous

RDH/DDH-2M-L Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	172 lbs. [764 N]	12 lbs. [53 N]
Maximum Compressive **C**	223 lbs. [993 N]	12 lbs. [53 N]
Maximum Moment **Mx**	283 in.-lbs. [32 Nm]	18 in.-lbs. [2 Nm]
Maximum Moment **My**	363 in.-lbs. [41 Nm]	18 in.-lbs. [2 Nm]
Maximum Moment **Mx**	230 in.-lbs. [26 Nm]	18 in.-lbs. [2 Nm]

†Capacities are per set of jaws and are not simultaneous

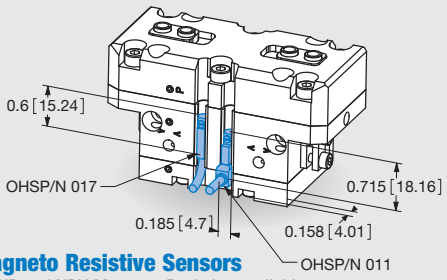
Specifications

Total Rated Grip Force, **F** @ 100 psi [7 bar]:		
Without Spring Assist	170 lbs.	754 N
Without Spring Assist **-L**	111 lbs.	494 N
With Spring Assist	226 lbs.	1006 N
With Spring Assist **-L**	149 lbs.	661 N
Total Stroke:		
Standard	0.24 in.	6 mm
Extended **-L**	0.47 in.	12 mm
Weight (RDH/DDH)	0.86/0.93 lbs.	0.39/0.42 Kg
Pressure Range without Spring	30-100 psi	2-7 Bar
Pressure Range with Spring	65-100 psi	4.5-7 Bar

Specifications (cont.)

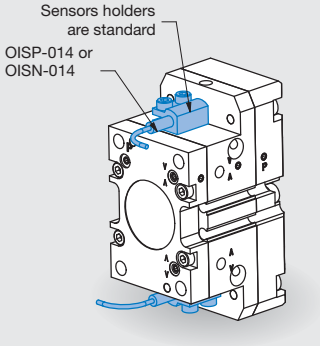
Max. Vacuum for Scavenge Port	8 in. Hg	20 mm Hg
Max. Pressure for Purge Port	30 psi	2.1 Bar
Cylinder Surface	1.24 in^2.	8 cm^2
Displacement	0.63 in^3.	10.3 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Actuation (open/close)	0.07 sec./0.07 sec.	
Accuracy	±0.0016 in.	±0.04 mm
Repeatability	±0.001 in.	±0.02 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Accessory Mounting Technical Data



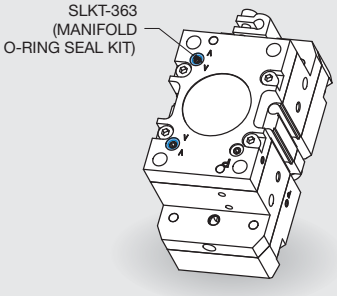
Magneto Resistive Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M Quick Disconnect mating cable (order separately)



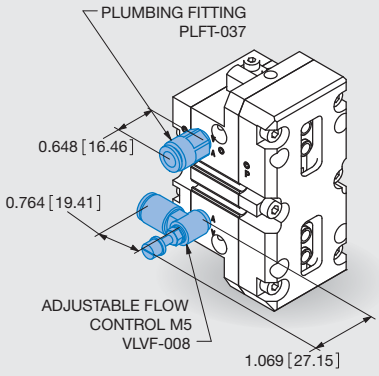
Inductive Sensors

- PNP and NPN Magneto Resistive available
- Sensors holders and targets are standard mounted
- Simple adjustment of the target with screw driver
- Available with 2M Quick Disconnect mating cable (order separately)



Manifold O-Ring Seals

- Used to seal top air ports and purge/scavenge port
- No C'bore holes in customer's mounting plate required (C'bore are machined in the gripper's body)
- Seals in manifold kit are Buna-N (Viton® seal kit SLKT-363V)



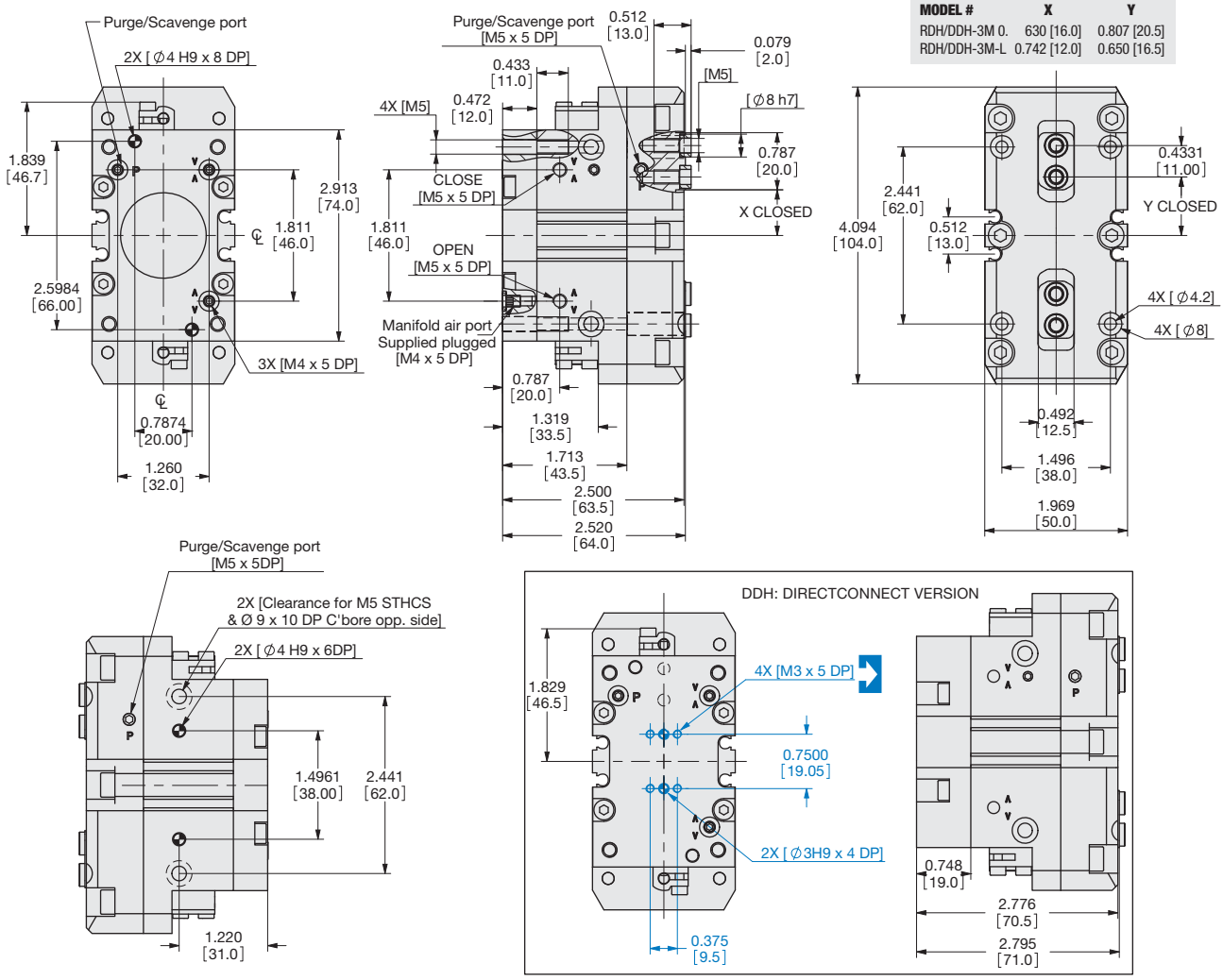
Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
  - For side air port location
  - Top air port are plugged as standard

DIRECT CONNECT™

PARALLEL GRIPPER RDH/DDH-3M
2-JAW PARALLEL SERIES

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SIZE | METRIC | SPRING ASSIST

[ ] - 3 M - L - [ ] - V

EXTENDED STROKE | VITON SEALS®

BASIC MODEL	**RDH**	Without DIRECTCONNECT Mounting Pattern
	DDH	With DIRECTCONNECT Mounting Pattern
SIZE	**3**	
METRIC	**M**	
EXTENDED STROKE	**__**	0.31" [8mm] Leave Blank (standard)
	L	0.63" [16mm]
SPRING	**C**	Spring Closed
	O	Spring Open
	__	Leave Blank. No Spring Option (standard)
VITON® SEALS	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DDH-3M-L-C-V

Ex: DDH-3M DIRECTCONNECT Parallel Gripper, Metric, 16mm Extended Stroke, Spring Closed, Viton® Seals

SENSOR ACCESSORIES*

4mm PNP Inductive Sensor w/ M8 Quick Disconnect*	**OISP-014**	**1 or 2**
4mm NPN Inductive Sensor w/ M8 Quick Disconnect*	**OISN-014**	**1 or 2**
PNP Magneto Resistive Sensor Short Barrel w/ M8 Qk Disc*	**OHSP-017**	**1 or 4**
NPN Magneto Resistive Sensor Short Barrel w/ M8 Qk Disc*	**OHSN-017**	**1 or 4**
PNP Magneto Resistive Sensor (90° barrel) w/ M8 Qk. Disc*	**OHSP-011**	**1 or 4**
NPN Magneto Resistive Sensor (90° barrel) w/ M8 Qk. Disc*	**OHSN-011**	**1 or 4**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 4**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 4**

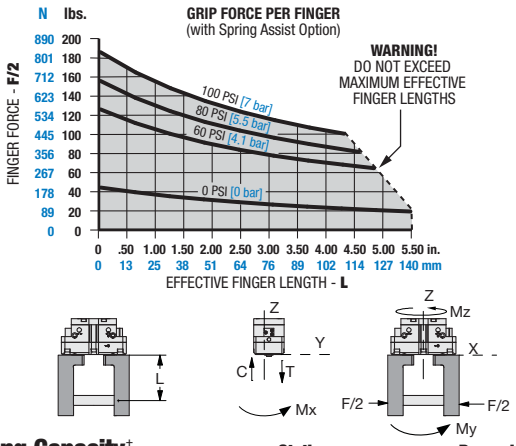
PNEUMATIC ACCESSORIES

Buna-N Seal Repair Kit	**SLKT-418**	**1**
Buna-N Rear Inlet Seal Repair Kit	**SLKT-364**	**1**
Viton® Seal Repair Kit	**SLKT-418V**	**1**
Viton® Rear Inlet Seal Repair Kit	**SLKT-364V**	**1**
M5 Adjustable Flow Control	**VLVF-008**	**1 or 2**

*Sensor and cable sold separately.

DIRECTCONNECT™

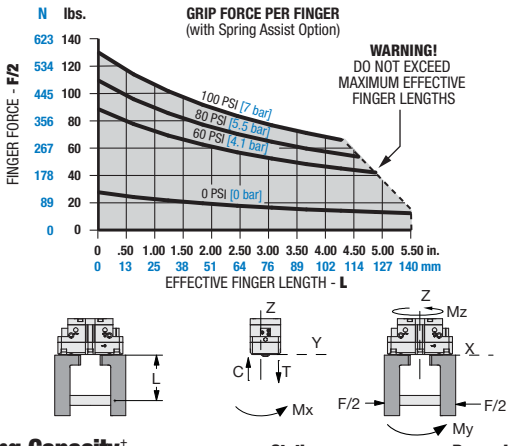
RDH/DDH-3M Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	289 lbs. [1284 N]	44 lbs. [196 N]
Maximum Compressive **C**	374 lbs. [1665 N]	44 lbs. [196 N]
Maximum Moment **Mx**	513 in.-lbs. [58 Nm]	62 in.-lbs. [7 Nm]
Maximum Moment **My**	735 in.-lbs. [83 Nm]	97 in.-lbs. [11 Nm]
Maximum Moment **Mx**	478 in.-lbs. [54 Nm]	97 in.-lbs. [11 Nm]

†Capacities are per set of jaws and are not simultaneous

RDH/DDH-3M-L Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	258 lbs. [1146 N]	29 lbs. [127 N]
Maximum Compressive **C**	334 lbs. [1485 N]	29 lbs. [127 N]
Maximum Moment **Mx**	460 in.-lbs. [52 Nm]	44 in.-lbs. [5 Nm]
Maximum Moment **My**	584 in.-lbs. [66 Nm]	53 in.-lbs. [6 Nm]
Maximum Moment **Mx**	381 in.-lbs. [43 Nm]	53 in.-lbs. [6 Nm]

†Capacities are per set of jaws and are not simultaneous

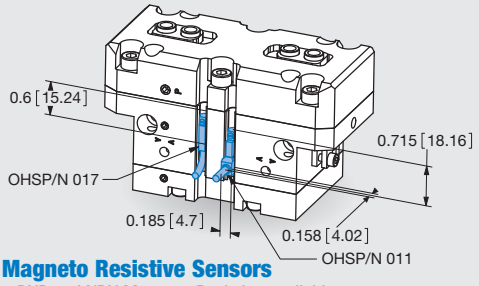
Specifications

Total Rated Grip Force, **F** @ 100 psi [7 bar]:		
Without Spring Assist	296 lbs.	1317 N
Without Spring Assist **-L**	192 lbs.	854 N
With Spring Assist	379 lbs.	1683 N
With Spring Assist **-L**	246 lbs.	1094 N
Total Stroke:		
Standard	0.31 in.	8 mm
Extended **-L**	0.63 in.	16 mm
Weight (RDH/DDH)	1.81/1.94 lbs.	0.82/0.88 Kg
Pressure Range without Spring	30-100 psi	2-7 Bar
Pressure Range with Spring	50-100 psi	3.5-7 Bar

Specifications (cont.)

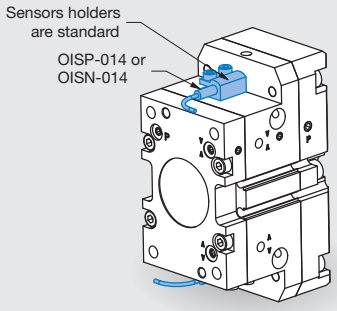
Max. Vacuum for Scavenge Port	8 in. Hg	20 mm Hg
Max. Pressure for Purge Port	30 psi	2.1 Bar
Cylinder Surface	2.14 in^2.	13.8 cm^2
Displacement	1.43 in^3.	23.4 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Actuation (open/close)	0.08 sec./0.08 sec.	
Accuracy	±0.0016 in.	±0.04 mm
Repeatability	±0.001 in.	±0.02 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Accessory Mounting Technical Data



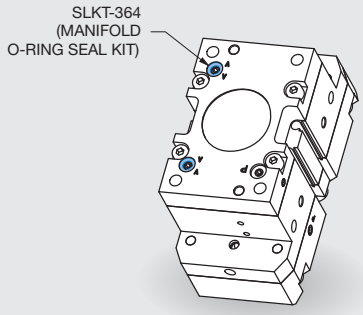
Magneto Resistive Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M Quick Disconnect mating cable (order separately)



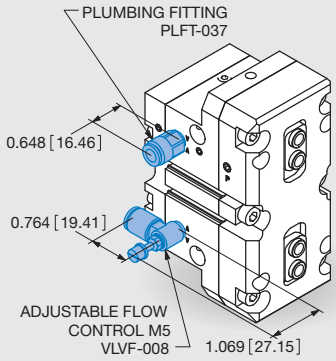
Inductive Sensors

- PNP and NPN Magneto Resistive available
- Sensors holders and targets are standard mounted
- Simple adjustment of the target with screw driver
- Available with 2M Quick Disconnect mating cable (order separately)



Manifold O-Ring Seals

- Used to seal top air ports and purge/scavenge port
- No C'bore holes in customer's mounting plate required (C'bore are machined in the gripper's body)
- Seals in manifold kit are Buna-N (Viton® seal kit SLKT-364V)



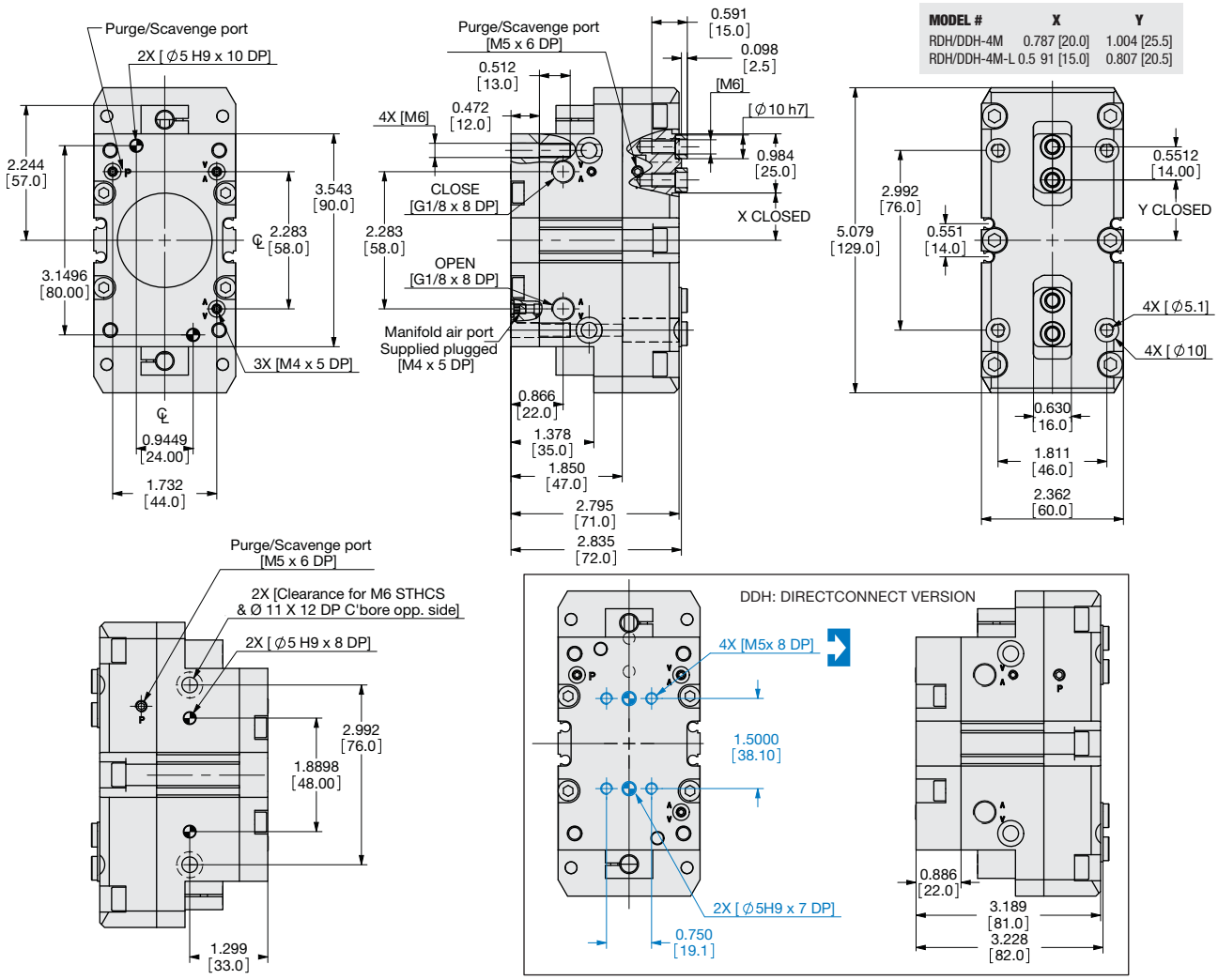
Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
  - For side air port location
  - Top air port are plugged as standard

DIRECT CONNECT™

PARALLEL GRIPPER RDH/DDH-4M
2-JAW PARALLEL SERIES

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SIZE | METRIC | SPRING ASSIST | EXTENDED STROKE | VITON SEALS®

[ ] - 4 M - [L] - [ ] - [V]

BASIC MODEL	**RDH**	Without DIRECTCONNECT Mounting Pattern
	DDH	With DIRECTCONNECT Mounting Pattern
SIZE	**4**	
METRIC	**M**	
EXTENDED STROKE	**__**	0.39" [10mm] Leave Blank (standard)
	L	0.79" [20mm]
SPRING	**C**	Spring Closed
	O	Spring Open
	__	Leave Blank. No Spring Option (standard)
VITON® SEALS	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DDH-4M-L-C-V

Ex: DDH-4M DIRECTCONNECT Parallel Gripper, Metric, 20mm Extended Stroke, Spring Closed, Viton® Seals

SENSOR ACCESSORIES*

8mm PNP Inductive Sensor w/ M8 Quick Disconnect*	**OISP-011**	**1 or 2**
8mm NPN Inductive Sensor w/ M8 Quick Disconnect*	**OISN-011**	**1 or 2**
PNP Magneto Resistive Sensor Short Barrel w/ M8 Qk Disc*	**OHSP-017**	**1 or 4**
NPN Magneto Resistive Sensor Short Barrel w/ M8 Qk Disc*	**OHSN-017**	**1 or 4**
PNP Magneto Resistive Sensor (90° barrel) w/ M8 Qk. Disc*	**OHSP-011**	**1 or 4**
NPN Magneto Resistive Sensor (90° barrel) w/ M8 Qk. Disc*	**OHSN-011**	**1 or 4**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 4**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 4**

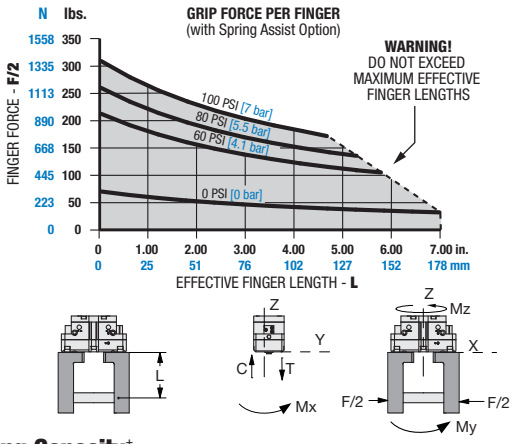
PNEUMATIC ACCESSORIES

Buna-N Seal Repair Kit	**SLKT-419**	**1**
Buna-N Rear Inlet Seal Repair Kit	**SLKT-364**	**1**
Viton® Seal Repair Kit	**SLKT-419V**	**1**
Viton® Rear Inlet Seal Repair Kit	**SLKT-364V**	**1**
G 1/8" Adjustable Flow Control	**VLVF-005**	**1 or 2**

*Sensor and cable sold separately.

DIRECTCONNECT™

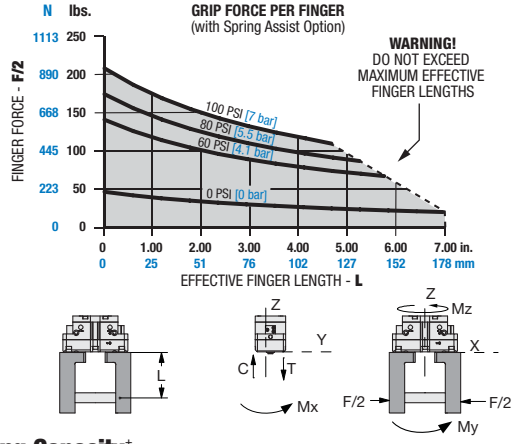
RDH/DDH-4M Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	352 lbs. [1564 N]	58 lbs. [259 N]
Maximum Compressive **C**	465 lbs. [2070 N]	58 lbs. [259 N]
Maximum Moment **Mx**	673 in.-lbs. [76 Nm]	89 in.-lbs. [10 Nm]
Maximum Moment **My**	938 in.-lbs. [106 Nm]	124 in.-lbs. [14 Nm]
Maximum Moment **Mx**	620 in.-lbs. [70 Nm]	124 in.-lbs. [14 Nm]

†Capacities are per set of jaws and are not simultaneous

RDH/DDH-4M-L Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	313 lbs. [1394 N]	38 lbs. [168 N]
Maximum Compressive **C**	415 lbs. [1845 N]	38 lbs. [168 N]
Maximum Moment **Mx**	602 in.-lbs. [68 Nm]	53 in.-lbs. [6 Nm]
Maximum Moment **My**	743 in.-lbs. [84 Nm]	71 in.-lbs. [8 Nm]
Maximum Moment **Mx**	496 in.-lbs. [56 Nm]	71 in.-lbs. [8 Nm]

†Capacities are per set of jaws and are not simultaneous

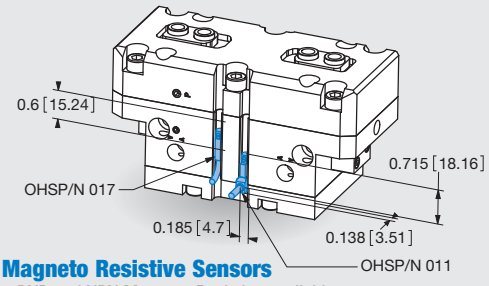
Specifications

Total Rated Grip Force, **F** @ 100 psi [7 bar]:		
Without Spring Assist	490 lbs.	2177 N
Without Spring Assist **-L**	318 lbs.	1414 N
With Spring Assist	628 lbs.	2789 N
With Spring Assist **-L**	408 lbs.	1814 N
Total Stroke:		
Standard	0.39 in.	10 mm
Extended **-L**	0.79 in.	20 mm
Weight (RDH/DDH)	3.15/3.33 lbs.	1.43/1.51 Kg
Pressure Range without Spring	30-100 psi	2-7 Bar
Pressure Range with Spring	50-100 psi	3.5-7 Bar

Specifications (cont.)

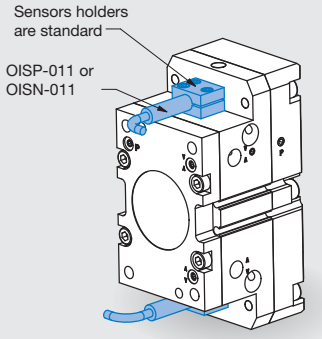
Max. Vacuum for Scavenge Port	8 in. Hg	20 mm Hg
Max. Pressure for Purge Port	30 psi	2.1 Bar
Cylinder Surface	3.52 in^2.	22.7 cm^2
Displacement	2.90 in^3.	47.5 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Actuation (open/close)	0.8 sec./0.8 sec.	
Accuracy	±0.0024 in.	±0.06 mm
Repeatability	±0.0012 in.	±0.03 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Accessory Mounting Technical Data



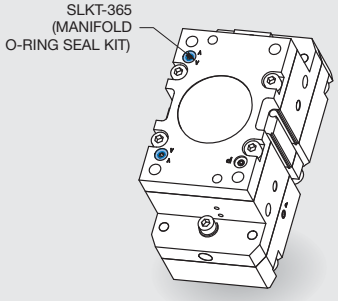
Magneto Resistive Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M Quick Disconnect mating cable (order separately)



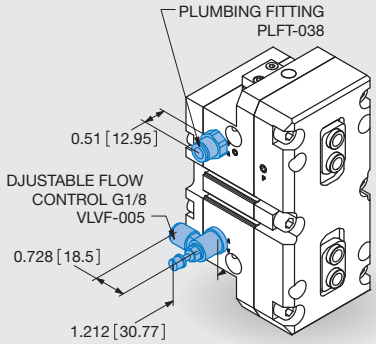
Inductive Sensors

- PNP and NPN Magneto Resistive available
- Sensors holders and targets are standard mounted
- Simple adjustment of the target with screw driver
- Available with 2M Quick Disconnect mating cable (order separately)



Manifold O-Ring Seals

- Used to seal top air ports and purge/scavenge port
- No C'bore holes in customer's mounting plate required (C'bore are machined in the gripper's body)
- Seals in manifold kit are Buna-N (Viton® seal kit SLKT-364V)



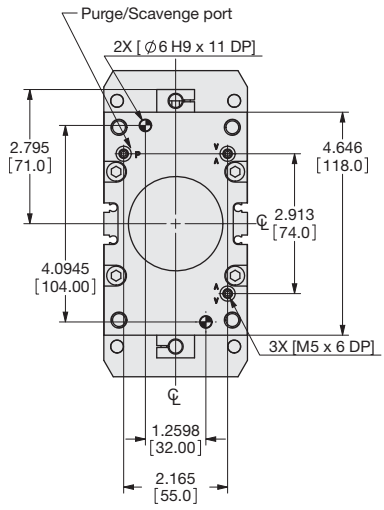
Plumbing Fittings

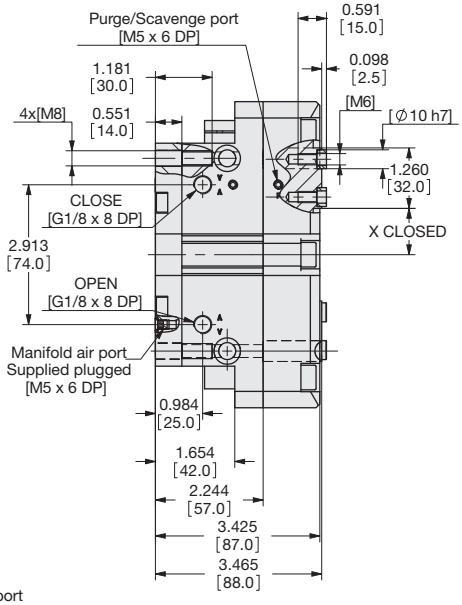
- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
  - For side air port location
  - Top air port are plugged as standard

DIRECTCONNECT™

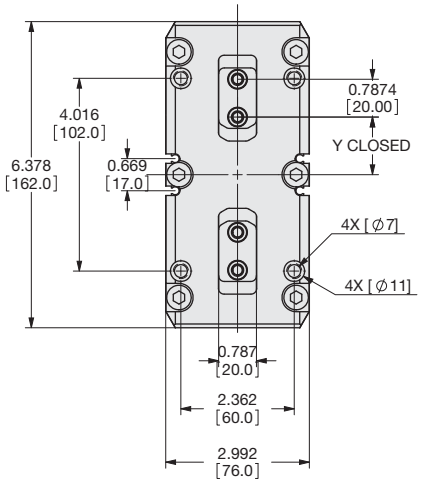
PARALLEL GRIPPER RDH/DDH-5M
2-JAW PARALLEL SERIES

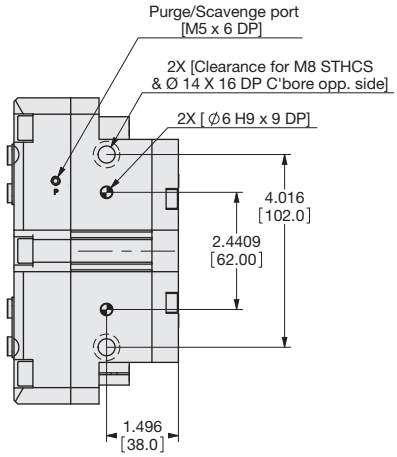
Robohand

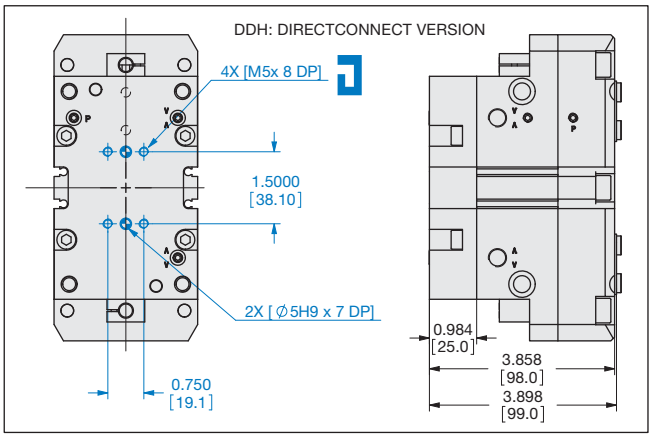




MODEL #	X	Y
RDH/DDH-5M 0.	965 [24.5]	1.201 [30.5]
RDH/DDH-5M-L 0.70	9 [18.0]	0.945 [24.0]







UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SIZE | METRIC | SPRING ASSIST

[ ]-5M-[L]-[ ]-[V]

EXTENDED STROKE | VITON SEALS®

BASIC MODEL	**RDH**	Without DIRECTCONNECT Mounting Pattern
	DDH	With DIRECTCONNECT Mounting Pattern
SIZE	**5**	
METRIC	**M**	
EXTENDED STROKE	**__**	0.51" [13mm] Leave Blank (standard)
	L	1.02" [26mm]
SPRING	**C**	Spring Closed
	O	Spring Open
	__	Leave Blank. No Spring Option (standard)
VITON® SEALS	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DDH-5M-L-C-V

Ex: DDH-5M DIRECTCONNECT Parallel Gripper, Metric, 26mm Extended Stroke, Spring Closed, Viton® Seals

SENSOR ACCESSORIES*

8mm PNP Inductive Sensor w/ M8 Quick Disconnect*	**OISP-011**	**1 or 2**
8mm NPN Inductive Sensor w/ M8 Quick Disconnect*	**OISN-011**	**1 or 2**
PNP Magneto Resistive Sensor Short Barrel w/ M8 Qk Disc*	**OHSP-017**	**1 or 4**
NPN Magneto Resistive Sensor Short Barrel w/ M8 Qk Disc*	**OHSN-017**	**1 or 4**
PNP Magneto Resistive Sensor (90° barrel) w/ M8 Qk. Disc*	**OHSP-011**	**1 or 4**
NPN Magneto Resistive Sensor (90° barrel) w/ M8 Qk. Disc*	**OHSN-011**	**1 or 4**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 4**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 4**

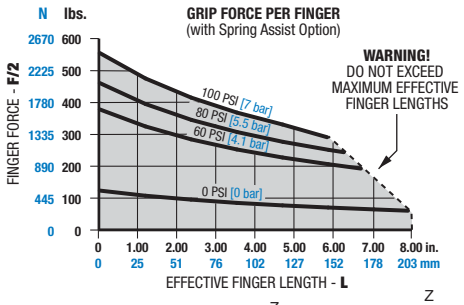
PNEUMATIC ACCESSORIES

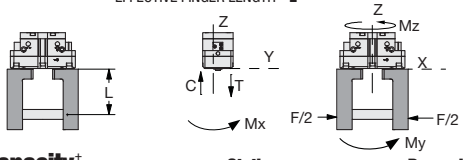
Buna-N Seal Repair Kit	**SLKT-420**	**1**
Buna-N Rear Inlet Seal Repair Kit	**SLKT-365**	**1**
Viton® Seal Repair Kit	**SLKT-420V**	**1**
Viton® Rear Inlet Seal Repair Kit	**SLKT-365V**	**1**
G 1/8" Adjustable Flow Control	**VLVF-005**	**1 or 2**

*Sensor and cable sold separately.

DIRECTCONNECT™

RDH/DDH-5M Loading Information

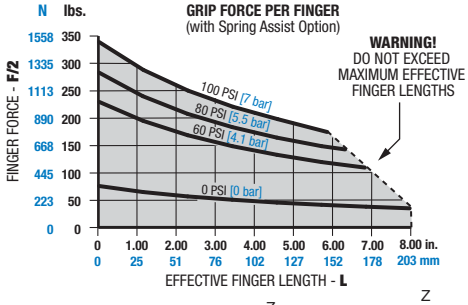


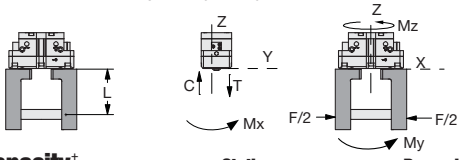


Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	493 lbs. [2192 N]	96 lbs. [428 N]
Maximum Compressive **C**	657 lbs. [2923 N]	96 lbs. [428 N]
Maximum Moment **Mx**	929 in.-lbs. [105 Nm]	142 in.-lbs. [16 Nm]
Maximum Moment **My**	1310 in.-lbs. [148 Nm]	195 in.-lbs. [22 Nm]
Maximum Moment **Mx**	859 in.-lbs. [97 Nm]	195 in.-lbs. [22 Nm]

†Capacities are per set of jaws and are not simultaneous

RDH/DDH-5M-L Loading Information





Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	442 lbs. [1966 N]	62 lbs. [278 N]
Maximum Compressive **C**	589 lbs. [2621 N]	62 lbs. [278 N]
Maximum Moment **Mx**	832 in.-lbs. [94 Nm]	89 in.-lbs. [10 Nm]
Maximum Moment **My**	1053 in.-lbs. [119 Nm]	115 in.-lbs. [13 Nm]
Maximum Moment **Mx**	690 in.-lbs. [78 Nm]	115 in.-lbs. [13 Nm]

†Capacities are per set of jaws and are not simultaneous

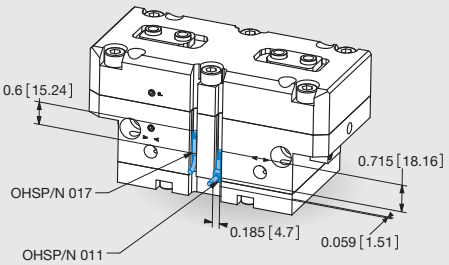
Specifications

Total Rated Grip Force, **F** @ 100 psi [7 bar]:		
Without Spring Assist	808 lbs.	3593 N
Without Spring Assist **-L**	525 lbs.	2333 N
With Spring Assist	1037 lbs.	4609 N
With Spring Assist **-L**	675 lbs.	2999 N
Total Stroke:		
Standard	0.51 in.	13 mm
Extended **-L**	1.02 in.	26 mm
Weight (RDH/DDH)	6.06/6.57 lbs.	2.75/2.98 Kg
Pressure Range without Spring	30-100 psi	2-7 Bar
Pressure Range with Spring	60-100 psi	4-7 Bar

Specifications (cont.)

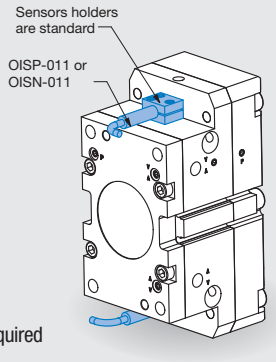
Max. Vacuum for Scavenge Port	8 in. Hg	20 mm Hg
Max. Pressure for Purge Port	30 psi	2.1 Bar
Cylinder Surface	5.81 in^2.	37.5 cm^2
Displacement	6.22 in^3.	102 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Actuation (open/close)	0.14 sec./0.14 sec.	
Accuracy	±0.0024 in.	±0.06 mm
Repeatability	±0.0012 in.	±0.03 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Accessory Mounting Technical Data



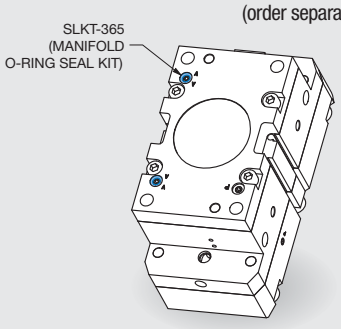
Magneto Resistive Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M Quick Disconnect mating cable (order separately)



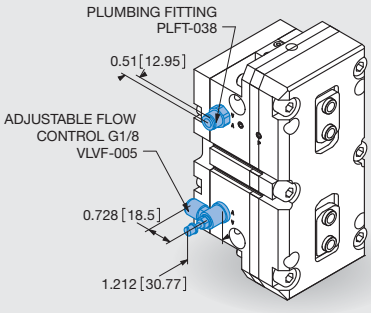
Inductive Sensors

- PNP and NPN Magneto Resistive available
- Sensors holders and targets are standard mounted
- Simple adjustment of the target with screw driver
- Available with 2M Quick Disconnect mating cable (order separately)



Manifold O-Ring Seals

- Used to seal top air ports and purge/scavenge port
- No C'bore holes in customer's mounting plate required (C'bore are machined in the gripper's body)
- Seals in manifold kit are Buna-N (Viton® seal kit SLKT-365V)



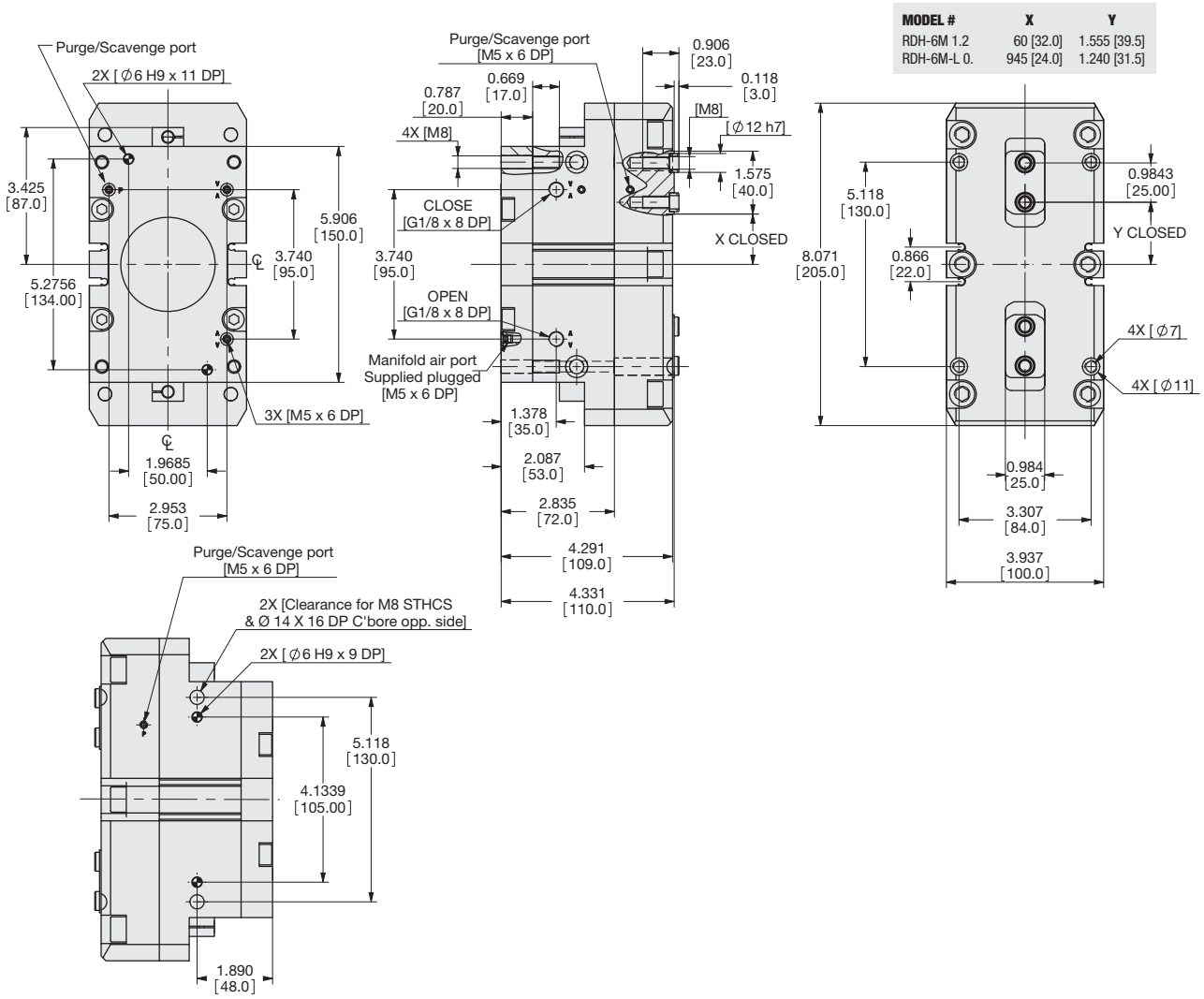
Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
  - For side air port location
  - Top air port are plugged as standard

DIRECT CONNECT™

PARALLEL GRIPPER RDH-6M
2-JAW PARALLEL SERIES

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SIZE | METRIC | SPRING ASSIST | EXTENDED STROKE | VITON SEALS®

RDH - 6 M - L - ___ - V

BASIC MODEL	**RDH**	Without DIRECTCONNECT Mounting Pattern
SIZE	**6**	
METRIC	**M**	
EXTENDED STROKE	**__**	0.63" [16mm] Leave Blank (standard)
	L	1.26" [32mm]
SPRING	**C**	Spring Closed
	O	Spring Open
	__	Leave Blank. No Spring Option (standard)
VITON® SEALS	**V**	High Temperature Viton® Seals

SAMPLE ORDER: RDH-6M-L-C-V

Ex: RDH-6M Parallel Gripper, Metric, 32mm Extended Stroke, Spring Closed, Viton® Seals

SENSOR ACCESSORIES*

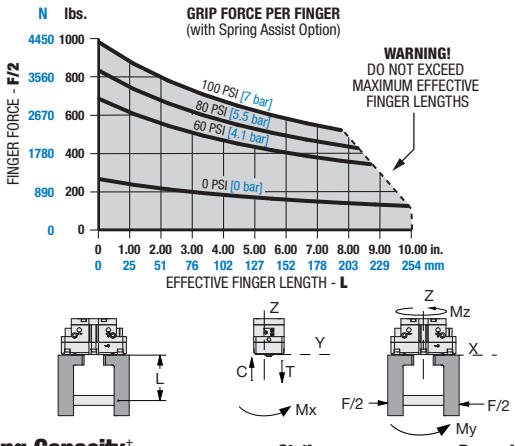
8mm PNP Inductive Sensor w/ M8 Quick Disconnect*	**OISP-011**	**1 or 2**
8mm NPN Inductive Sensor w/ M8 Quick Disconnect*	**OISN-011**	**1 or 2**
PNP Magneto Resistive Sensor Short Barrel w/ M8 Qk Disc*	**OHSP-017**	**1 or 4**
NPN Magneto Resistive Sensor Short Barrel w/ M8 Qk Disc*	**OHSN-017**	**1 or 4**
PNP Magneto Resistive Sensor (90° barrel) w/ M8 Qk. Disc*	**OHSP-011**	**1 or 4**
NPN Magneto Resistive Sensor (90° barrel) w/ M8 Qk. Disc*	**OHSN-011**	**1 or 4**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 4**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 4**

PNEUMATIC ACCESSORIES

Buna-N Seal Repair Kit	**SLKT-421**	**1**
Buna-N Rear Inlet Seal Repair Kit	**SLKT-365**	**1**
Viton® Seal Repair Kit	**SLKT-421V**	**1**
Viton® Rear Inlet Seal Repair Kit	**SLKT-365V**	**1**
G 1/8" Adjustable Flow Control	**VLVF-005**	**1 or 2**

*Sensor and cable sold separately.

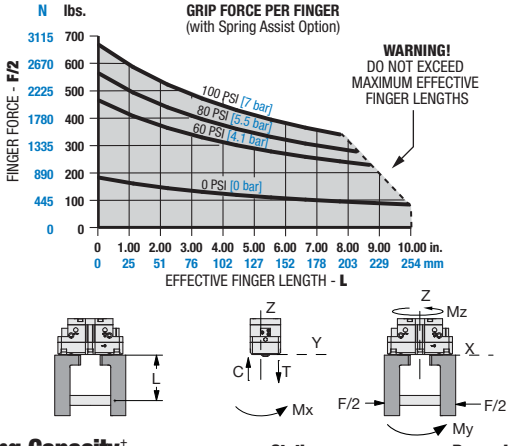
RDH/DDH-6M Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	779 lbs. [3463 N]	186 lbs. [827 N]
Maximum Compressive **C**	1045 lbs. [4649 N]	186 lbs. [827 N]
Maximum Moment **Mx**	1204 in.-lbs. [136 Nm]	248 in.-lbs. [28 Nm]
Maximum Moment **My**	1744 in.-lbs. [197 Nm]	363 in.-lbs. [41 Nm]
Maximum Moment **Mx**	1151 in.-lbs. [130 Nm]	363 in.-lbs. [41 Nm]

†Capacities are per set of jaws and are not simultaneous

RDH/DDH-6M-L Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	694 lbs. [3089 N]	121 lbs. [537 N]
Maximum Compressive **C**	932 lbs. [4146 N]	121 lbs. [537 N]
Maximum Moment **Mx**	1071 in.-lbs. [121 Nm]	159 in.-lbs. [18 Nm]
Maximum Moment **My**	1390 in.-lbs. [157 Nm]	212 in.-lbs. [24 Nm]
Maximum Moment **Mx**	912 in.-lbs. [103 Nm]	212 in.-lbs. [24 Nm]

†Capacities are per set of jaws and are not simultaneous

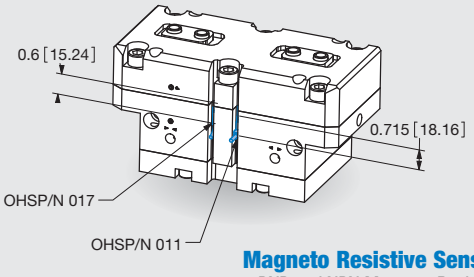
Specifications

Total Rated Grip Force, **F** @ 100 psi [7 bar]:		
Without Spring Assist	1406 lbs.	6250 N
Without Spring Assist **-L**	914 lbs.	4062 N
With Spring Assist	1944 lbs.	8640 N
With Spring Assist **-L**	1265 lbs.	5623 N
Total Stroke:		
Standard	0.63 in.	16 mm
Extended **-L**	1.26 in.	32 mm
Weight	12.72 lbs.	5.77 Kg
Pressure Range without Spring	30-100 psi	2-7 Bar
Pressure Range with Spring	65-100 psi	4.5-7 Bar

Specifications (cont.)

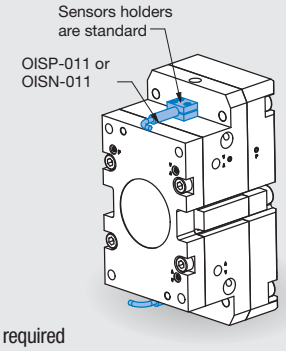
Max. Vacuum for Scavenge Port	8 in. Hg	20 mm Hg
Max. Pressure for Purge Port	30 psi	2.1 Bar
Cylinder Surface	10.08 in^2.	65 cm^2
Displacement	13.18 in^3.	216 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Actuation (open/close)	0.20 sec./0.20 sec.	
Accuracy	±0.0031 in.	±0.08 mm
Repeatability	±0.0016 in.	±0.04 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Accessory Mounting Technical Data



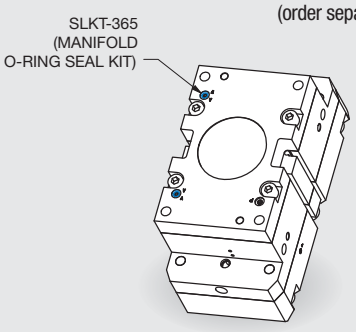
Magneto Resistive Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M Quick Disconnect mating cable (order separately)



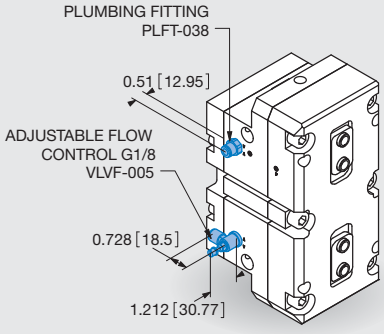
Inductive Sensors

- PNP and NPN Magneto Resistive available
- Sensors holders and targets are standard mounted
- Simple adjustment of the target with screw driver
- Available with 2M Quick Disconnect mating cable (order separately)



Manifold O-Ring Seals

- Used to seal top air ports and purge/scavenge port
- No C'bore holes in customer's mounting plate required (C'bore are machined in the gripper's body)
- Seals in manifold kit are Buna-N (Viton® seal kit SLKT-365V)

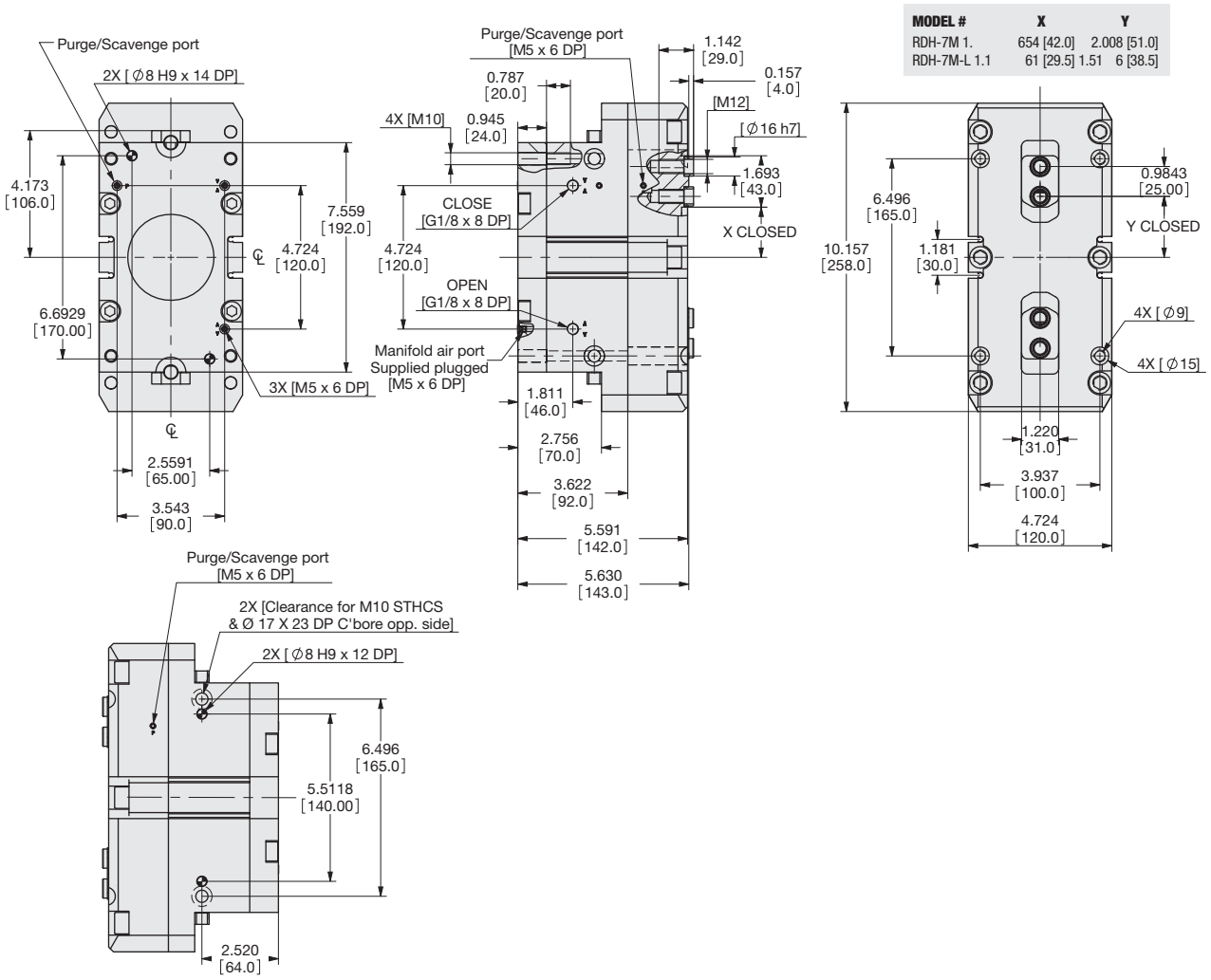


Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
  - For side air port location
  - Top air port are plugged as standard

PARALLEL GRIPPER RDH-7M
2-JAW PARALLEL SERIES

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SIZE | METRIC | SPRING ASSIST | EXTENDED STROKE | VITON SEALS®

RDH - 7 M - L - ___ - V

BASIC MODEL	**RDH**	Without DIRECTCONNECT Mounting Pattern
SIZE	**7**	
METRIC	**M**	
EXTENDED STROKE	**__**	0.98" [25mm] Leave Blank (standard)
	L	1.97" [50mm]
SPRING	**C**	Spring Closed
	O	Spring Open
	__	Leave Blank. No Spring Option (standard)
VITON® SEALS	**V**	High Temperature Viton® Seals

SAMPLE ORDER: RDH-7M-L-C-V

Ex: RDH-7M Parallel Gripper, Metric, 50mm Extended Stroke, Spring Closed, Viton® Seals

SENSOR ACCESSORIES*

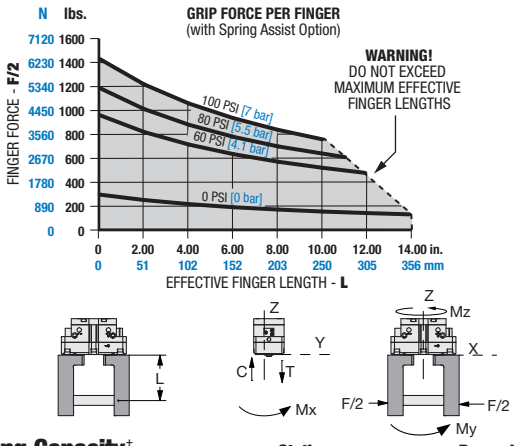
12mm PNP Inductive Sensor w/ M12 Quick Disconnect*	**OISP-017**	**1 or 2**
12mm NPN Inductive Sensor w/ M12 Quick Disconnect*	**OISN-017**	**1 or 2**
PNP Magneto Resistive Sensor Short Barrel w/ M8 Qk Disc*	**OHSP-017**	**1 or 4**
NPN Magneto Resistive Sensor Short Barrel w/ M8 Qk Disc*	**OHSN-017**	**1 or 4**
PNP Magneto Resistive Sensor (90° barrel) w/ M8 Qk. Disc*	**OHSP-011**	**1 or 4**
NPN Magneto Resistive Sensor (90° barrel) w/ M8 Qk. Disc*	**OHSN-011**	**1 or 4**
M8 Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 4**
M8 Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 4**
M12 Quick Disconnect 2 Meter Cable Length*	**CABL-014**	**1 or 2**
M12 Quick Disconnect 5 Meter Cable Length*	**CABL-018**	**1 to 2**

PNEUMATIC ACCESSORIES

Buna-N Seal Repair Kit	**SLKT-422**	**1**
Buna-N Rear Inlet Seal Repair Kit	**SLKT-365**	**1**
Viton® Seal Repair Kit	**SLKT-422V**	**1**
Viton® Rear Inlet Seal Repair Kit	**SLKT-365V**	**1**
G 1/8" Adjustable Flow Control	**VLVF-005**	**1 or 2**

*Sensor and cable sold separately.

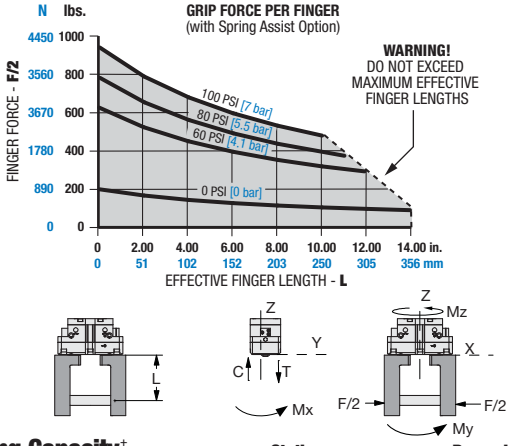
RDH/DDH-7M Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	1013 lbs. [4505 N]	236 lbs. [1048 N]
Maximum Compressive **C**	1335 lbs. [5938 N]	236 lbs. [1048 N]
Maximum Moment **Mx**	1478 in.-lbs. [167 Nm]	319 in.-lbs. [36 Nm]
Maximum Moment **My**	2106 in.-lbs. [238 Nm]	451 in.-lbs. [51 Nm]
Maximum Moment **Mx**	1425 in.-lbs. [161 Nm]	451 in.-lbs. [51 Nm]

†Capacities are per set of jaws and are not simultaneous

RDH/DDH-7M-L Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	879 lbs. [3911 N]	152 lbs. [678 N]
Maximum Compressive **C**	1159 lbs. [5155 N]	152 lbs. [678 N]
Maximum Moment **Mx**	1283 in.-lbs. [145 Nm]	204 in.-lbs. [23 Nm]
Maximum Moment **My**	1584 in.-lbs. [179 Nm]	257 in.-lbs. [29 Nm]
Maximum Moment **Mx**	1080 in.-lbs. [122 Nm]	257 in.-lbs. [29 Nm]

†Capacities are per set of jaws and are not simultaneous

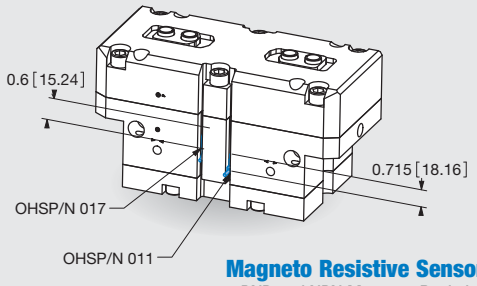
Specifications

Total Rated Grip Force, **F** @ 100 psi [7 bar]:		
Without Spring Assist	2228 lbs.	9901 N
Without Spring Assist **-L**	1441 lbs.	6404 N
With Spring Assist	2822 lbs.	12542 N
With Spring Assist **-L**	1830 lbs.	8135 N
Total Stroke:		
Standard	0.98 in.	25 mm
Extended **-L**	1.97 in.	50 mm
Weight	24.8 lbs.	11.25 Kg
Pressure Range without Spring	30-100 psi	2-7 Bar
Pressure Range with Spring	60-100 psi	4-7 Bar

Specifications (cont.)

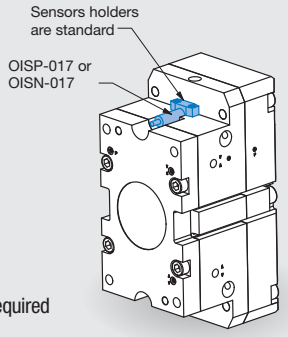
Max. Vacuum for Scavenge Port	8 in. Hg	20 mm Hg
Max. Pressure for Purge Port	30 psi	2.1 Bar
Cylinder Surface	16.12 in^2.	104 cm^2
Displacement	32.95 in^3.	540 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Actuation (open/close)	0.55 sec./0.55 sec.	
Accuracy	±0.0039 in.	±0.1 mm
Repeatability	±0.002 in.	±0.05 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Accessory Mounting Technical Data



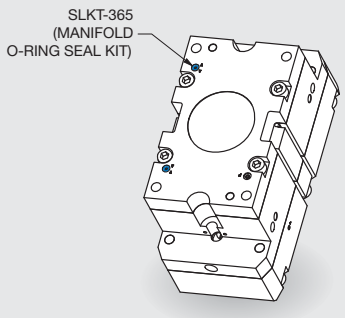
Magneto Resistive Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M Quick Disconnect mating cable (order separately)



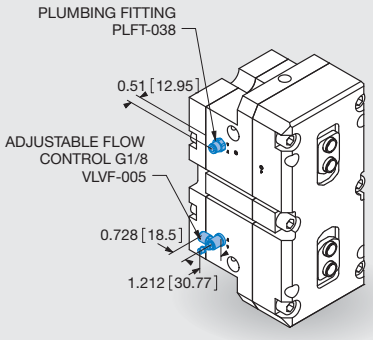
Inductive Sensors

- PNP and NPN Magneto Resistive available
- Sensors holders and targets are standard mounted
- Simple adjustment of the target with screw driver
- Available with 2M Quick Disconnect mating cable (order separately)



Manifold O-Ring Seals

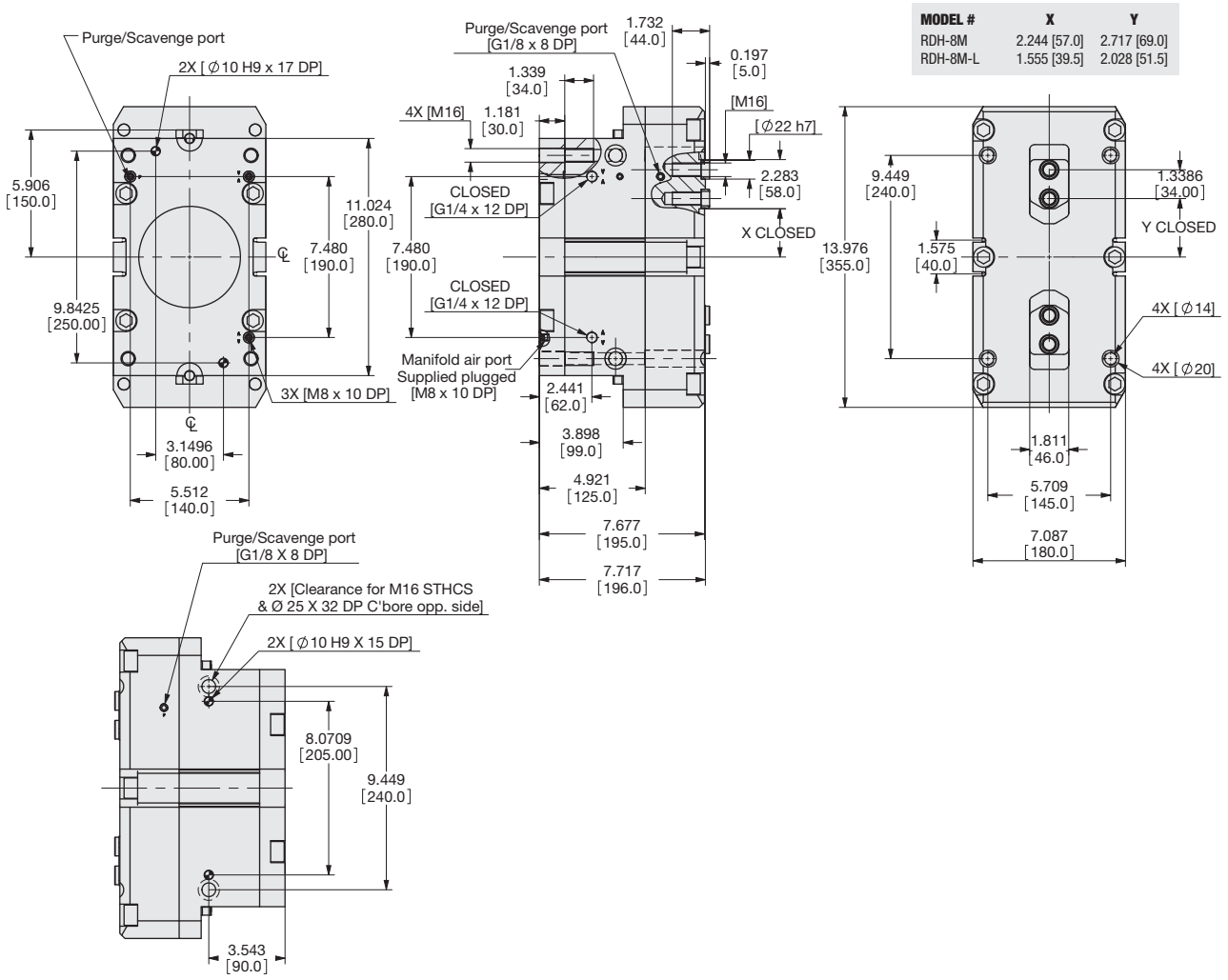
- Used to seal top air ports and purge/scavenge port
- No C'bore holes in customer's mounting plate required (C'bore are machined in the gripper's body)
- Seals in manifold kit are Buna-N (Viton® seal kit SLKT-365 V)



Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
  - For side air port location
  - Top air port are plugged as standard

PARALLEL GRIPPER RDH-8M
2-JAW PARALLEL SERIES



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SIZE | METRIC | SPRING ASSIST | EXTENDED STROKE | VITON SEALS®

RDH - 8 M - L - ___ - V

BASIC MODEL	**RDH**	Without DIRECTCONNECT Mounting Pattern
SIZE	**8**	
METRIC	**M**	
EXTENDED STROKE	**__**	1.38" [35mm] Leave Blank (standard)
	L	2.76" [70mm]
SPRING	**C**	Spring Closed
	O	Spring Open
	__	Leave Blank. No Spring Option (standard)
VITON® SEALS	**V**	High Temperature Viton® Seals

SAMPLE ORDER: RDH-8M-L-C-V

Ex: RDH-8M Parallel Gripper, Metric, 70mm Extended Stroke, Spring Closed, Viton® Seals

SENSOR ACCESSORIES*

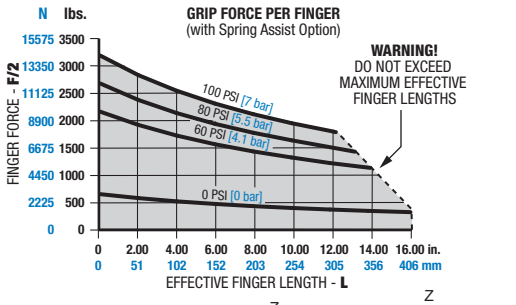
12mm PNP Inductive Sensor w/ M12 Quick Disconnect*	**OISP-017**	**1 or 2**
12mm NPN Inductive Sensor w/ M12 Quick Disconnect*	**OISN-017**	**1 or 2**
PNP Magneto Resistive Sensor Short Barrel w/ M8 Qk Disc*	**OHSP-017**	**1 or 4**
NPN Magneto Resistive Sensor Short Barrel w/ M8 Qk Disc*	**OHSN-017**	**1 or 4**
PNP Magneto Resistive Sensor (90° barrel) w/ M8 Qk. Disc*	**OHSP-011**	**1 or 4**
NPN Magneto Resistive Sensor (90° barrel) w/ M8 Qk. Disc*	**OHSN-011**	**1 or 4**
M8 Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 4**
M8 Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 4**
M12 Quick Disconnect 2 Meter Cable Length*	**CABL-014**	**1 or 2**
M12 Quick Disconnect 5 Meter Cable Length*	**CABL-018**	**1 to 2**

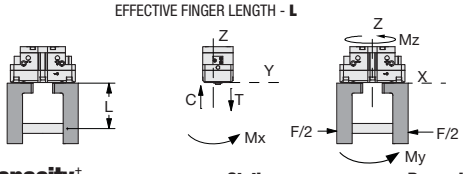
PNEUMATIC ACCESSORIES

Buna-N Seal Repair Kit	**SLKT-423**	**1**
Buna-N Rear Inlet Seal Repair Kit	**SLKT-366**	**1**
Viton® Seal Repair Kit	**SLKT-423V**	**1**
Viton® Rear Inlet Seal Repair Kit	**SLKT-366V**	**1**
G 1/4" Adjustable Flow Control	**VLVF-010**	**1 or 2**

*Sensor and cable sold separately.

RDH/DDH-8M Loading Information

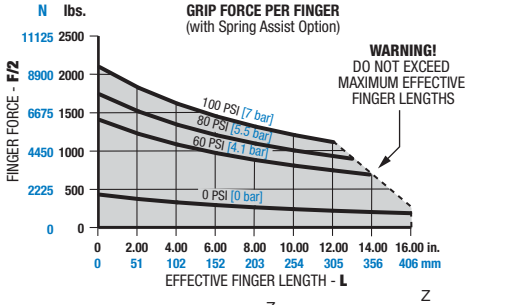


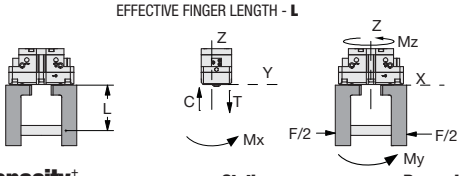


Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	1543 lbs. [6863 N]	392 lbs. [1743 N]
Maximum Compressive **C**	2006 lbs. [8921 N]	392 lbs. [1743 N]
Maximum Moment **Mx**	3354 in.-lbs. [379 Nm]	743 in.-lbs. [84 Nm]
Maximum Moment **My**	4257 in.-lbs. [481 Nm]	947 in.-lbs. [107 Nm]
Maximum Moment **Mx**	2664 in.-lbs. [301 Nm]	947 in.-lbs. [107 Nm]

†Capacities are per set of jaws and are not simultaneous

RDH/DDH-8M-L Loading Information





Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	1328 lbs. [5906 N]	253 lbs. [1125 N]
Maximum Compressive **C**	1726 lbs. [7678 N]	253 lbs. [1125 N]
Maximum Moment **Mx**	2885 in.-lbs. [326 Nm]	478 in.-lbs. [54 Nm]
Maximum Moment **My**	3160 in.-lbs. [357 Nm]	522 in.-lbs. [59 Nm]
Maximum Moment **Mx**	1974 in.-lbs. [223 Nm]	522 in.-lbs. [59 Nm]

†Capacities are per set of jaws and are not simultaneous

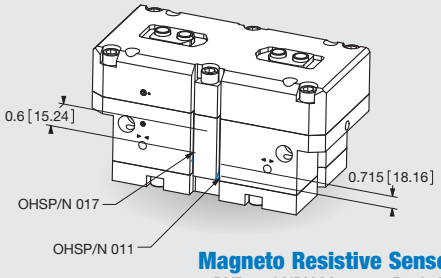
Specifications

Total Rated Grip Force, **F** @ 100 psi [7 bar]:		
Without Spring Assist	4941 lbs.	21958 N
Without Spring Assist **-L**	3190 lbs.	14178 N
With Spring Assist	6300 lbs.	28002 N
With Spring Assist **-L**	4076 lbs.	18115 N
Total Stroke:		
Standard	1.38 in.	35 mm
Extended **-L**	2.76 in.	70 mm
Weight	71.1 lbs.	32.3 Kg
Pressure Range without Spring	30-100 psi	2-7 Bar
Pressure Range with Spring	50-100 psi	3.5-7 Bar

Specifications (cont.)

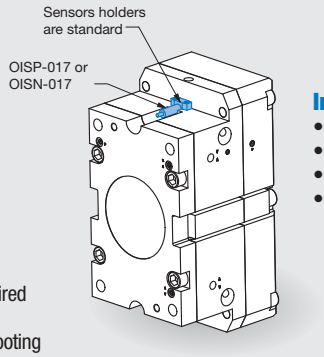
Max. Vacuum for Scavenge Port	8 in. Hg	20 mm Hg
Max. Pressure for Purge Port	30 psi	2.1 Bar
Cylinder Surface	35.81 in^2.	231 cm^2
Displacement	103.1 in^3.	1689 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Actuation (open/close)	1.3 sec./1.3 sec.	
Accuracy	±0.0039 in.	±0.1 mm
Repeatability	±0.002 in.	±0.05 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Accessory Mounting Technical Data



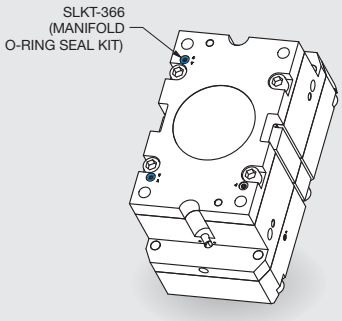
Magneto Resistive Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M Quick Disconnect mating cable (order separately)



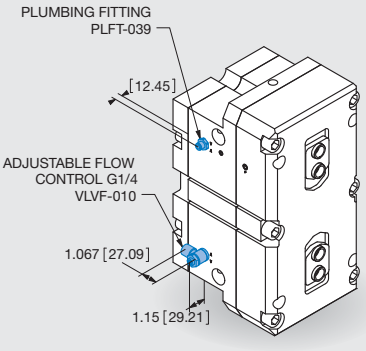
Inductive Sensors

- PNP and NPN Magneto Resistive available
- Sensors holders and targets are standard mounted
- Simple adjustment of the target with screw driver
- Available with 2M Quick Disconnect mating cable (order separately)



Manifold O-Ring Seals

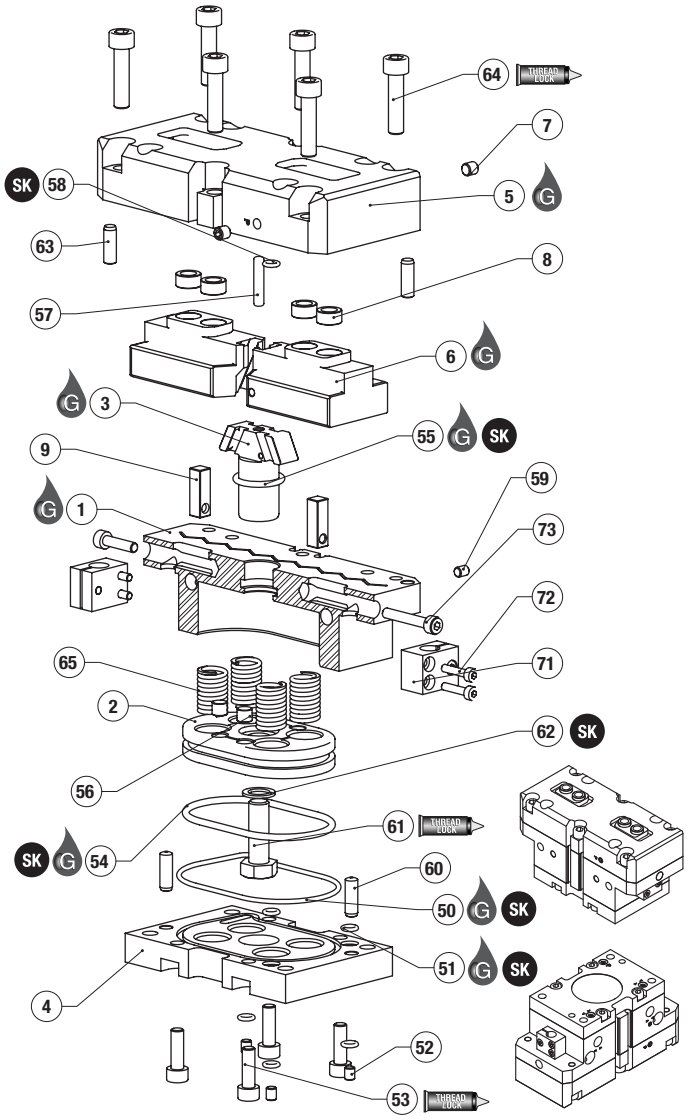
- Used to seal top air ports and purge/scavenge port
- No C'bore holes in customer's mounting plate required (C'bore are machined in the gripper's body)
- Seals in manifold kit are Buna-N (Viton® seal kit SLKT-366V)



Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
  - For side air port location
  - Top air port are plugged as standard

RDH/DDH Series Exploded View



Item	Qty	Name
01	1	Body
02	1	Piston
03	1	Double wedge
04	1	Cap
05	1	Bottom Case
06	2	Jaws
07	2	Bottom Case, SS Screw
08	4	Locating sleeve
09	2	Sensing nut
50	1	Cap, O-ring
51	2	Cap, O-ring
52	3	Cap, SS screw
53	4	Cap, SHC screw
54	1	Piston, O-ring
55	1	Body, O-ring
56	4	Piston, Magnet
57	1	Piston, Pin
58	1	Bottom case, O-ring
59	1	Body, SS screw
60	2	Cap, Pin
61	1	Double wedge, HH screw
62	1	Double wedge, Seal
63	2	Bottom case, Pin
64	6	Bottom case, SHC Screw
65	4 or 8	Spring
71	2	Sensor holder
72	4	Sensor holder, SHC screw
73	2	Sensing nut, SHC screw

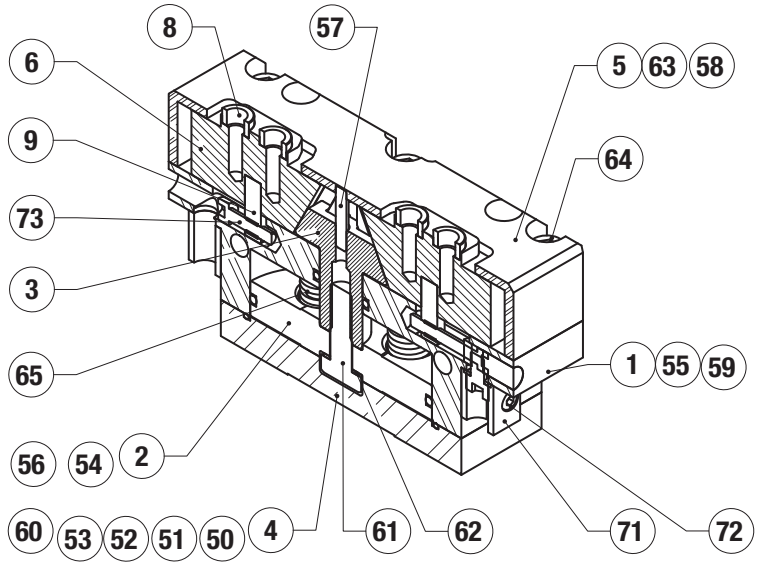
NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

SK Seal Repair Kit Order #'s See Product Data Sheets

Assembly Procedure

1) Lubricate and install seal #55 into the bod y #1
2) Install #59 screw with thread locker into the body #1
3) Sub assemble the sensing nuts #9 into the jaws #6
4) Sub assemble the jaws #6 on either side of the double wedge #3 with lubrica tion
5) Insert the jaws and double wedge sub assembly into the body
6) Install seal #58 into the bottom case #5
7) Insert the screws #7 into the bottom case #5
8) Install bottom case #5 with pressed-in pins #63 onto the body and fasten with #64 screws with thread locker
9) Lubricate and install seal #54 into the piston #2
10) Mount magnets #56 to piston #2 with thread locker
11) For –C option, insert the springs #65 into the body #1 counterbore holes
12) Insert the piston #2 with pressed-in pin #57 onto the double wedge#3 and fasten with screw #61 with thread locker and washer #62. Face mount the piston counterbore holes to the body counterbore holes for –C option. Opposite mount for –O option.
13) For –O option, insert the springs #65 into the piston #2 counterbore holes
14) Install the screws #52 with thread locker onto the cap #4
15) Install seals #50 and #51 into the ca p #4
16) Insert the cap #4 into the bod y #1 and locate it using cap dowel pins #60
17) Fasten the cap #4 with #53 screws with thread locker
18) Install the sensor holders #71 onto the bod y and fasten with screws #72
19) Insert screws #73 into the sensing nuts #9 from the body holes
20) Insert locating sleeves #8 into the jaws

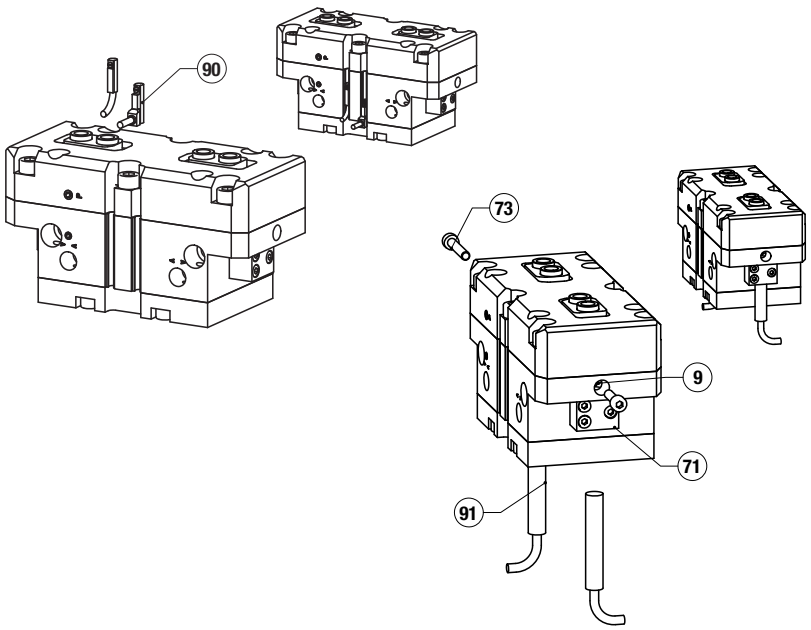
SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection



Item	Qty	Name
01	1	Body
02	1	Piston
03	1	Double wedge
04	1	Cap
05	1	Bottom Case
06	2	Jaws
07	2	Bottom Case, SS Screw
08	4	Locating sleeve
09	2	Sensing nut
50	1	Cap, O-ring
51	2	Cap, O-ring
52	3	Cap, SS screw
53	4	Cap, SHC screw
54	1	Piston, O-ring
55	1	Body, O-ring
56	4	Piston, Magnet
57	1	Piston, Pin
58	1	Bottom case, O-ring
59	1	Body, SS screw
60	2	Cap, Pin
61	1	Double wedge, HH screw
62	1	Double wedge, Seal
63	2	Bottom case, Pin
64	6	Bottom case, SHC Screw
65	4 or 8	Spring
71	2	Sensor holder
72	4	Sensor holder, SHC screw
73	2	Sensing nut, SHC screw

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Accessory Installation & Adjustment Instructions



Magneto Resistive Sensor #90

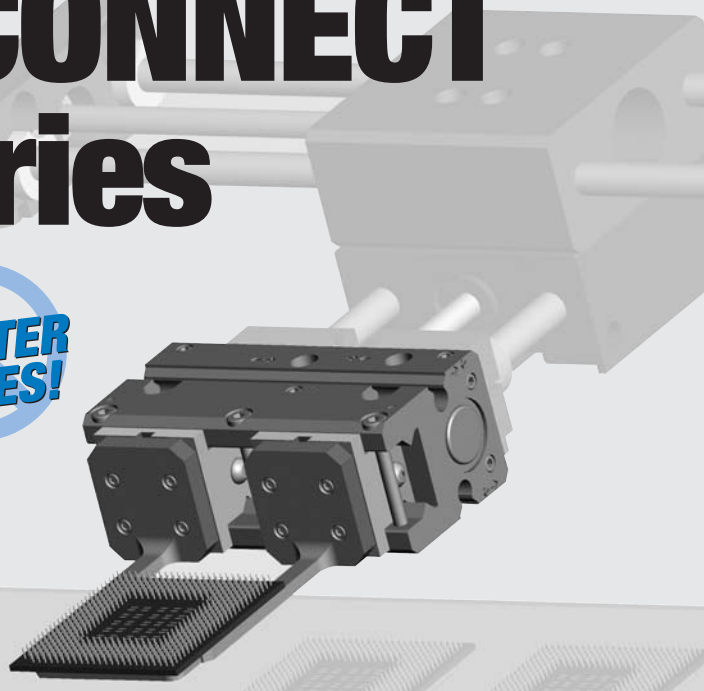
1) Insert sensor #90 from either end of the profile slot
2) Adjust the sensor #90 into the profile slot, depending on the position to sense
3) Set the sensor with the integrated screw

Inductive Sensor #91

1) Insert sensor #91 into the sensor holder #71
2) Tighten the sensor using the SHC screw onto the sensor holder #71
3) Insert the SHC screw #73 into the sensing nut #9. The SHC screws are the targets to be adjusted in front of the sensor. The SHC screws #73 are supplied with 2 different lengths: depending on the position to sense, use the shortest for open position, or the longest for close position. The sensing nut #9 has a thread insert that prevents the target from loosening (this may make the target harder to tighten into the nut).

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

Parallel Grippers - DPP DIRECTCONNECT™ Precision Series



- **Multiple Mounting Locations:** All sizes have DIRECTCONNECT top mounting. DIRECTCONNECT thru hole mounting on back side for all sizes except size DPP-28M
- **Multiple Air Port Locations:** Multiple airport locations: tapped air ports on front, top and both sides are standard. Top port is also manifold ready.
- **Sensing options**: Magneto resistive or inductive proximity sensors available. Up to 4 positions can be sensed.
- **Precision applications:** Preloaded "Dual-V" roller bearings eliminate side play for excellent part position repeatability.
- **Longer finger applications:** Rigid design and low friction design allows for longer gripper finger lengths to be used when compared to other grippers of equal weight & size.

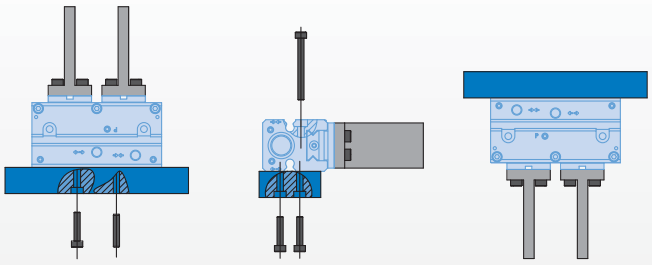
NO ADAPTER PLATES!

- **Delicate part handling**: Low friction mechanism allows for repeatable gripping forces for holding delicate parts. Grip force is easily adjusted by regulating air pressure.
- **Non-synchronous motion:** Non-synchronous option provides independent jaw motion allowing the gripper to pick or place at a point other than its center.
- **Spring return:** Optional double acting spring assist for increased force or fail-safe operation or operate as a single acting to open and to spring closed.

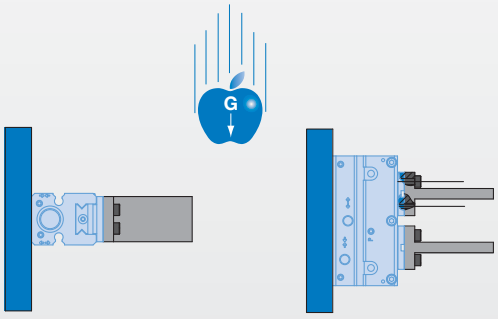
DIRECTCONNECT™ ADVANCED MODULAR AUTOMATION TECHNOLOGY

Mounting Information:

Grippers can be mounted & operated in any orientation



Body mounts with screws and locates with H7 dowel pins for accuracy



Fingers attach to jaws with screws and locate by key slot and/or H7 dowel pins

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range		
Standard	**5-100 psi**	**0.3-7 bar**
-C Spring Closed Option	**20-100 psi**	**1.5-7 bar**
Cylinder Type	**Double Acting or Single Acting Spring Return or Double Acting Spring Assist**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position for Double Acting or 3-way, 2-position for Single Acting**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~250° F**	**-30°~120° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

Application Restrictions

- Dirty or gritty environments
- Machine operations generating chips
- Environments with loose particulate
- Applications where mechanism lubricant could cause contamination

*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features

Excellent Accuracy
Excellent parallelism and accuracy between gripper mounting surface and jaw surfaces

Standard Purge/ Scavenge Port
Used with a vacuum for clean room environments or positive pressure for harsh environments and jaw surfaces

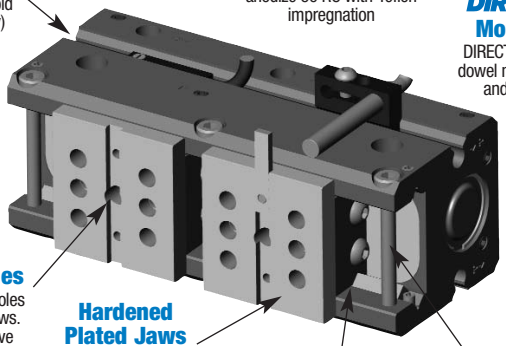
Shielded Design
Shielded design repels contamination from penetrating the "Dual-V" roller bearings

Accessory Mounting Slots
For Magneto Resistive and Inductive sensors
(Sensors sold separately)

Top Manifold Air Ports
Eliminates the need for airlines

Hard Coat Anodize
One piece, aircraft quality aluminum body, has hard-coat anodize 60 RC with Teflon impregnation

Multiple Air Port Locations
4 standard locations; front, top and both sides



DIRECTCONNECT Mounting Patterns
DIRECTCONNECT™ tapped and dowel mounting surfaces on top and side of body (except DPP-28)

Superior Jaw Support
Jaws are supported using our patented "Dual-V" roller bearing design

Optional Spring Assist
For close stroke

Dowel Holes
H7 dowel pin holes in body and jaws. Jaws also have key slot for better finger alignment

Hardened Plated Jaws
For wear resistance and longer life

Self Lubricating Dynamic Seals
(Buna-N only)

"Dual-V" Roller Bearings
Provide low friction motion and are preloaded for maximum support and zero side play

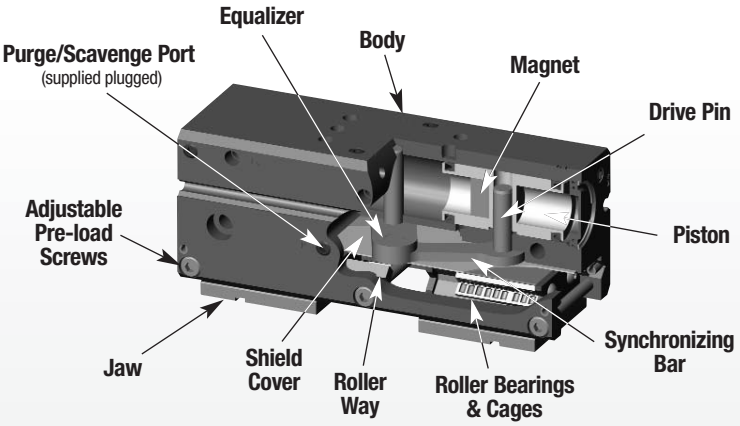
Adjustable Pre-load Screws
Allows for adjustment of preload on roller bearings

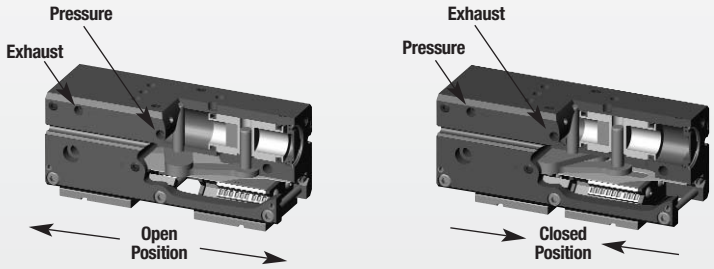
Multiple Sensor Capabilities
Capable of sensing both jaws in the open and closed positions (up to 4 sensors can be used for multi-position sensing)
Sensor magnets on pistons come standard for Magneto Resistive Sensing

Viton Seals
Available for high temperature applications

High Grip Force
With respect to weight due to extremely efficient drive mechanism

Operating Principle





- Dual double acting opposed pistons, connected to both a jaw and a synchronizing bar by a drive pin, actuate in opposite directions.
- The synchronizing bars are connected to the equalizer which synchronizes the motion.
- Suitable for internal or external gripping.
- The synchronizing elements can be removed for non-synchronous opera tion.

Designed, manufactured and assembled in the USA

Style -DPP Parallel Gripper

Size -10M-06

Style:	10M-06	
Stroke:	0.25 in.	6.4 mm
Grip Force:	25 lbs.	111 N
Weight:	0.35 lbs.	0.16 Kg

See Page 1.34

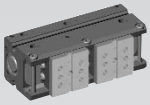
Size -10M-12

Style:	10M-12	
Stroke:	0.50 in.	12.7 mm
Grip Force:	25 lbs.	111 N
Weight:	0.45 lbs.	0.20 Kg

See Page 1.36

Style -DPP Parallel Gripper

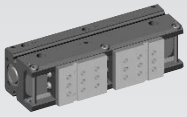
Size -14M-15



Style:	14M-15	
Stroke:	0.63 in.	15.9 mm
Grip Force:	45 lbs.	200 N
Weight:	1.05 lbs.	0.48 Kg

See Page 1.38

Size -14M-25

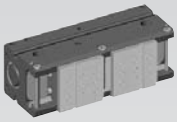


Style:	14M-25	
Stroke:	1.00 in.	25.4 mm
Grip Force:	45 lbs.	200 N
Weight:	1.25 lbs.	0.57 Kg

See Page 1.40

Style -DPP Parallel Gripper

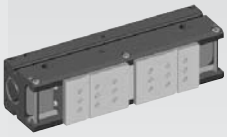
Size -20M-25



Style:	20M-25	
Stroke:	1.00 in.	25.4 mm
Grip Force:	95 lbs.	423 N
Weight:	2.25 lbs.	1.02 Kg

See Page 1.42

Size -20M-38

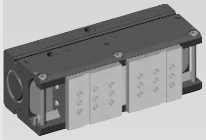


Style:	20M-38	
Stroke:	1.50 in.	38.1 mm
Grip Force:	95 lbs.	423 N
Weight:	3.10 lbs.	1.41 Kg

See Page 1.44

Style -DPP Parallel Gripper

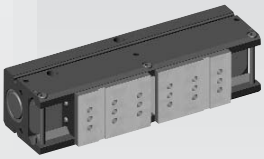
Size -28M-31



Style:	28M-31	
Stroke:	1.25 in.	31.8 mm
Grip Force:	190 lbs.	845 N
Weight:	4.55 lbs.	2.06 Kg

See Page 1.46

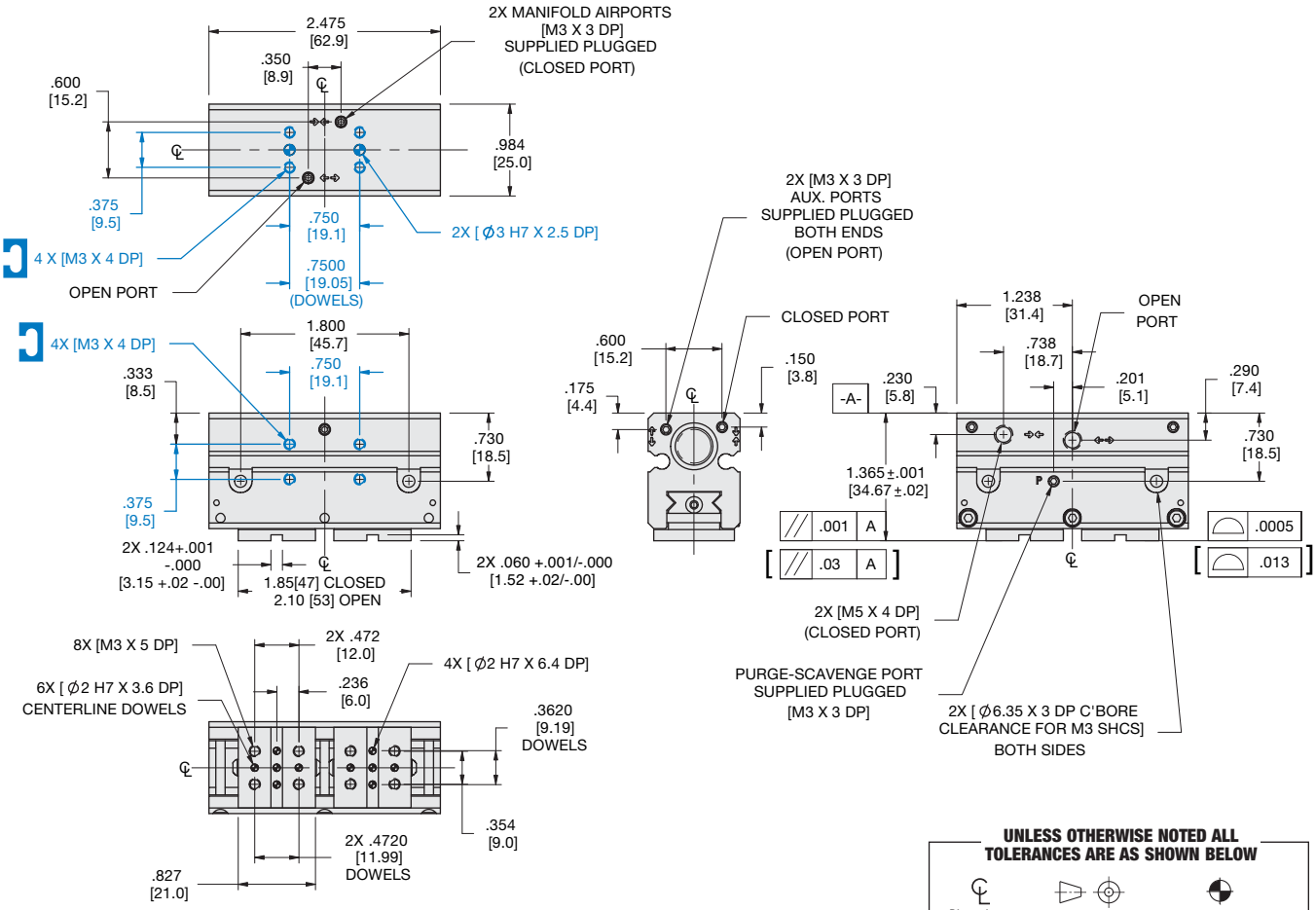
Size -28M-50



Style:	28M-50	
Stroke:	2.00 in.	50.8 mm
Grip Force:	190 lbs.	845 N
Weight:	6.25 lbs.	2.83 Kg

See Page 1.48

PARALLEL GRIPPERS DPP-10M-06
DIRECTCONNECT PRECISION SERIES



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	**Metric [mm]** [0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — SPRING — VITON SEALS

DPP-10M-06 - C - NS - V

NON-SYNCHRONOUS

SPRING **C** Spring Closed
__ Leave Blank. No Spring Option (standard)

JAW SYNCHRONIZATION **NS** Non-Synchronous Operation
__ Leave Blank for Synchronous (standard)

VITON® SEALS **V** High Temperature Viton Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Inductive Sensor Mounting Kit (Mounts 2 sensors)	OSMK-119	1 or 2
NPN Inductive Sensor (with Qk. Disc.)*	OISN-014	1, 2, 3 or 4
PNP Inductive Sensor (with Qk. Disc.)*	OISP-014	1, 2, 3 or 4
NPN Magneto Resistive Sensor (with Qk. Disc.)*†	OHSN-017	1, 2, 3 or 4
PNP Magneto Resistive Sensor (with Qk. Disc.)*†	OHSP-017	1, 2, 3 or 4
NPN Magneto Resistive Sensor 90° (with Qk. Disc.)*†	OHSN-011	1, 2, 3 or 4
PNP Magneto Resistive Sensor 90° (with Qk. Disc.)*†	OHSP-011	1, 2, 3 or 4
Quick Disconnect Cable (2 meters long)*	CABL-010	1, 2, 3 or 4
Quick Disconnect Cable (5 meters long)*	CABL-013	1, 2, 3 or 4

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit (Standard Buna-N)	SLKT-343	1
Seal Repair Kit (Viton)	SLKT-343V	1
Manifold Seal Kit (Viton® only)	SLKT-241V	1
Adjustable Flow Control-M3 Elbow-3MM OD Tube Push-in Style	VLVF-018	1 or 2
Adjustable Flow Control-M5 Elbow-6MM OD Tube Push-in Style	VLVF-008	1 or 2
Fail Safe Valve- M5	OFSV-004	1

*Sensor and cable sold separately. †Piston Magnet standard

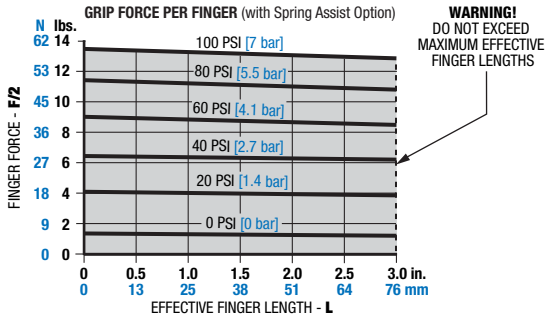
SAMPLE ORDER: DPP-10M-06-C-NS-V

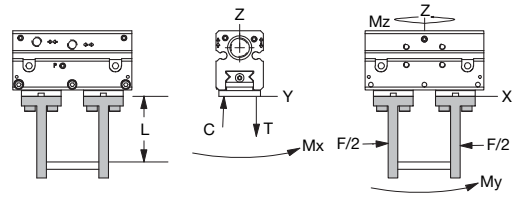
Ex: DPP-10 Metric Gripper, 6mm Stroke, Spring Closed, Non Synchronous, Viton Seals

PARALLEL GRIPPERS DPP-10M-06
DIRECTCONNECT PRECISION SERIES

Specifications	DPP-10M-06	
Total Rated Grip Force **F** @ 100 psi, 7 bar*	27 lbs.	120 N
Stroke	0.25 in.	6.4 mm
Weight	0.35 lbs.	0.16 Kg
Pressure Range (Without Springs)	5-100 psi	0.3-7 bar
Pressure Range (With Springs)	20-100 psi	1.4-7 bar
Cylinder Bore (2X)	0.406 in.	10.3 mm
Displacement	0.032 in^3	0.5 cm^3
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~150° C
Actuation (Without Spring/With Spring)	0.10/0.11 sec.	0.10/0.11 sec.
Accuracy	±0.001 in.	±0.03 mm
Repeatability	±0.0005 in.	±0.01 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

*With Springs

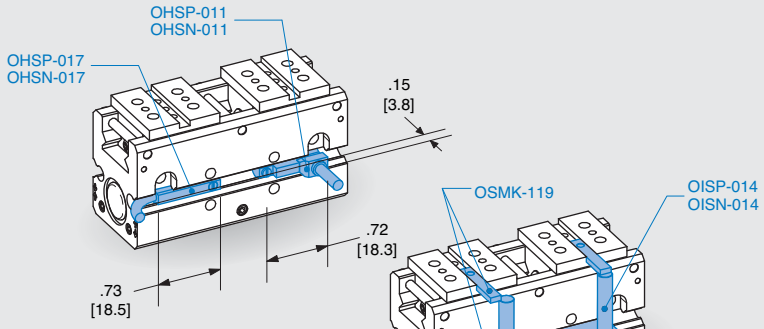




Loading Capacity	Static	Dynamic
Maximum Tensile **T**	60 lbs. [267 N]	20 lbs. [89 N]
Maximum Compressive **C**	60 lbs. [267 N]	20 lbs. [89 N]
Maximum Moment **Mx**	35 in.-lbs. [4.0 Nm]	12 in.-lbs. [1.4 Nm]
Maximum Moment **My**	50 in.-lbs. [5.6 Nm]	17 in.-lbs. [1.9 Nm]
Maximum Moment **Mz**	35 in.-lbs. [4.0 Nm]	12 in.-lbs. [1.4 Nm]

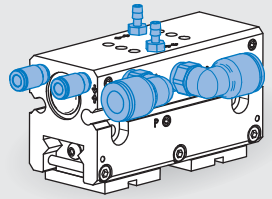
Note: Capacities are per set of jaws and are not simultaneous.

Accessory Mounting Technical Data



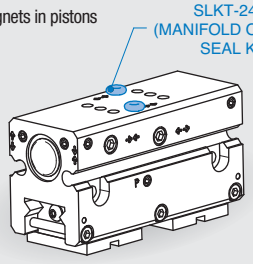
Sensors

- Magneto Resistive or Inductive Proximity available
- Capable of sensing 4 positions open and closed on both jaws
- PNP and NPN available
- Magneto resistive sensors are slot mounted, no mounting kits required
- Threaded Quick Disconnect with Built-in LED output
- Sensors mount on either side of gripper
- Sensors magnets in pistons are standard



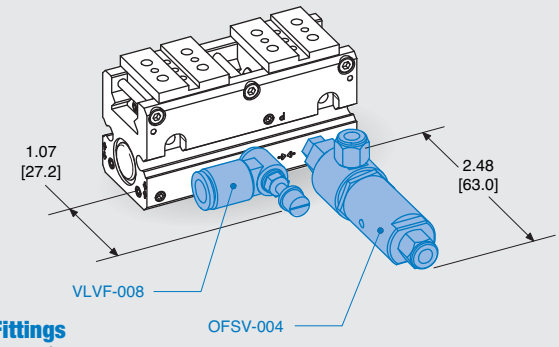
Multiple Air Port Locations

- Standard M5 Air Ports on front surface
- 3 M3 Air Port locations (Left, right, and top surface) are plugged as standard



Manifold O-Ring Seals

- Can be used to seal top Air Ports
- Seals in manifold kit are Viton
- O-Ring C'bores in customer's mounting plate must be: Ø.215 [Ø5.5] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs and wrenches needed



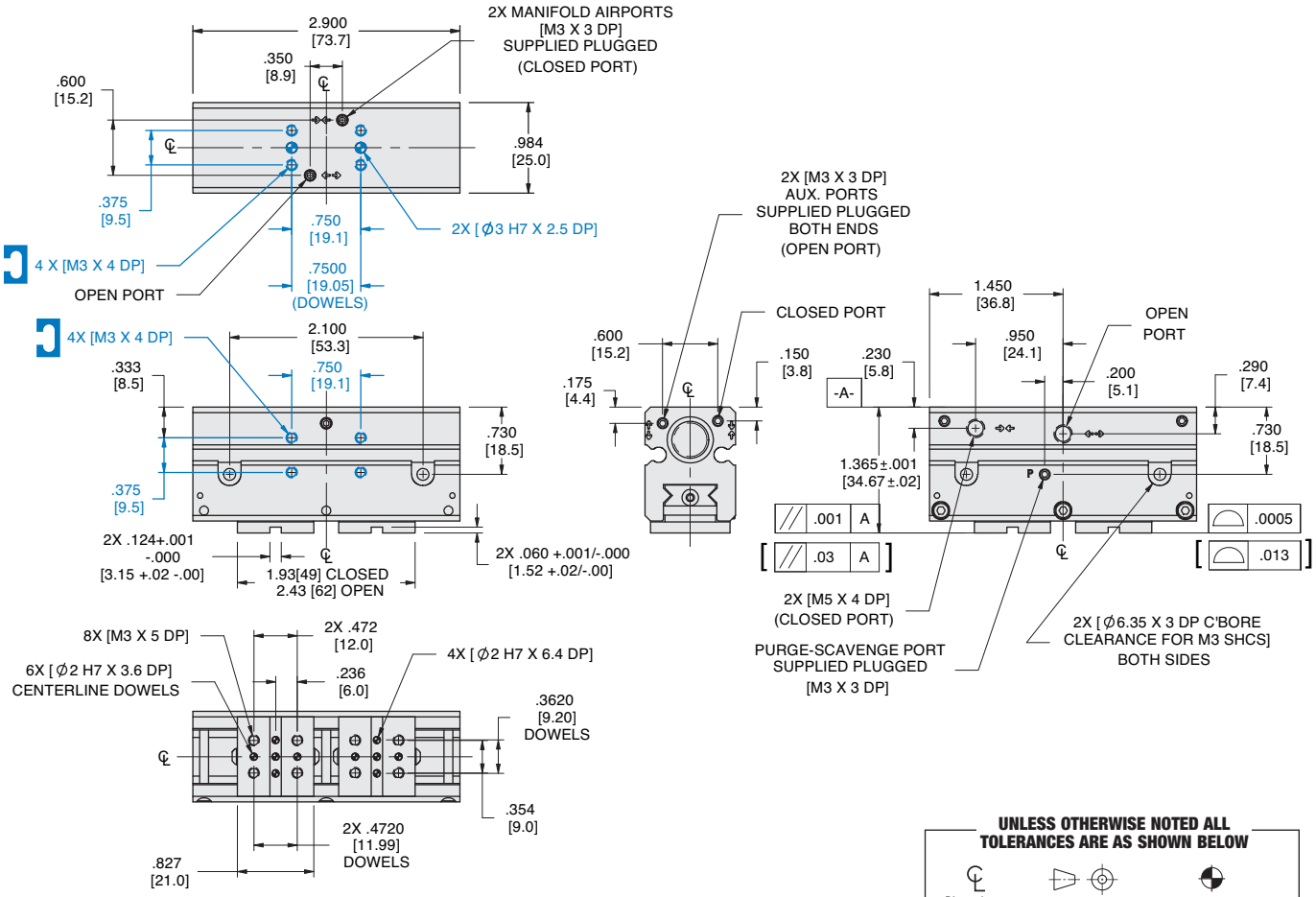
Plumbing Fittings

- Adjustable flow controls
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 3mm or 6mm O.D. Tubing
- Failsafe valve for applications
  - Where it is critical that the part being gripped not be dropped if air pressure is lost
  - Can mount directly to gripper or in-line with plumbing to gripper
  - For M5 Air Ports
- Consult factory for additional plumbing fittings

DIRECTCONNECT™

PARALLEL GRIPPERS DPP-10M-12
DIRECTCONNECT PRECISION SERIES

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ±.01 0.000 = ±.005 0.0000 = ±.0005	**Metric [mm]** [0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SPRING | VITON SEALS

DPP-10M-12 - C - NS - V

NON-SYNCHRONOUS

SPRING **C** Spring Closed
__ Leave Blank. No Spring Option (standard)

JAW SYNCHRONIZATION **NS** Non-Synchronous Operation
__ Leave Blank for Synchronous (standard)

VITON® SEALS **V** High Temperature Viton Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Inductive Sensor Mounting Kit (Mounts 2 sensors)	OSMK-119	1 or 2
NPN Inductive Sensor (with Qk. Disc.)*	OISN-014	1, 2, 3 or 4
PNP Inductive Sensor (with Qk. Disc.)*	OISP-014	1, 2, 3 or 4
NPN Magneto Resistive Sensor (with Qk. Disc.)*†	OHSN-017	1, 2, 3 or 4
PNP Magneto Resistive Sensor (with Qk. Disc.)*†	OHSP-017	1, 2, 3 or 4
NPN Magneto Resistive Sensor 90º (with Qk. Disc.)*†	OHSN-011	1, 2, 3 or 4
PNP Magneto Resistive Sensor 90º (with Qk. Disc.)*†	OHSP-011	1, 2, 3 or 4
Quick Disconnect Cable (2 meters long)*	CABL-010	1, 2, 3 or 4
Quick Disconnect Cable (5 meters long)*	CABL-013	1, 2, 3 or 4

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit (Standard Buna-N)	SLKT-343	1
Seal Repair Kit (Viton)	SLKT-343V	1
Manifold Seal Kit (Viton® only)	SLKT-241V	1
Adjustable Flow Control-M3 Elbow-3MM OD Tube Push-in Style	VLVF-018	1 or 2
Adjustable Flow Control-M5 Elbow-6MM OD Tube Push-in Style	VLVF-008	1 or 2
Fail Safe Valve- M5	OFSV-004	1

*Sensor and cable sold separately. †Piston Magnet standard

SAMPLE ORDER: DPP-10M-12-C-NS-V

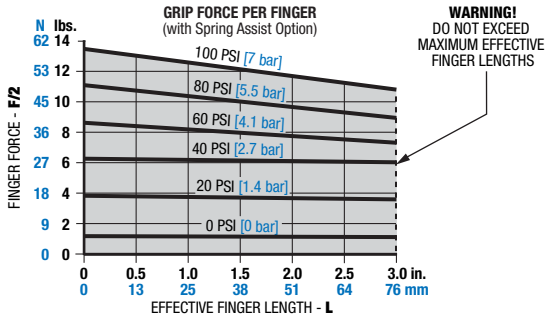
Ex: DPP-10 Metric Gripper, 12mm Stroke, Spring Closed, Non Synchronous, Viton Seals

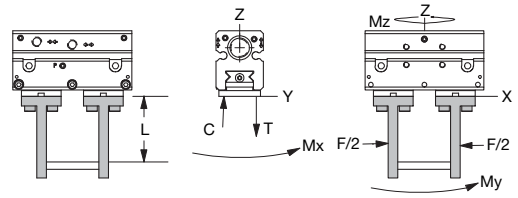
DIRECTCONNECT™

PARALLEL GRIPPERS DPP-10M-12
DIRECTCONNECT PRECISION SERIES

Specifications	DPP-10M-12	
Total Rated Grip Force **F** @ 100 psi, 7 bar*	27 lbs.	120 N
Stroke	0.50 in.	12.7 mm
Weight	0.45 lbs.	0.20 Kg
Pressure Range (Without Springs)	5-100 psi	0.3-7 bar
Pressure Range (With Springs)	20-100 psi	1.4-7 bar
Cylinder Bore (2X)	0.406 in.	10.3 mm
Displacement	0.065 in^3	1.1 cm^3
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation (Without Spring/With Spring)	0.11/0.12 sec.	0.11/0.12 sec.
Accuracy	±0.001 in.	±0.03 mm
Repeatability	±0.0005 in.	±0.01 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

*With Springs

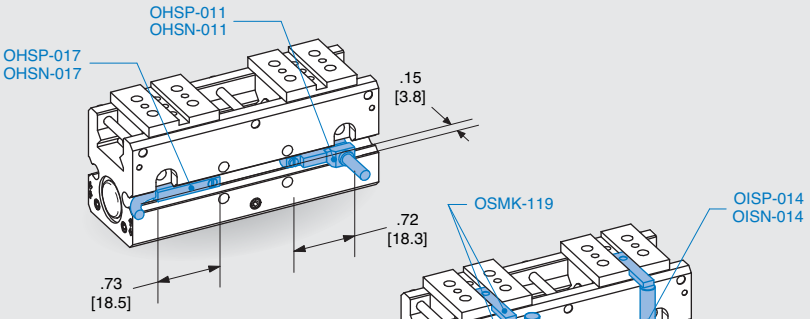




Loading Capacity	Static	Dynamic
Maximum Tensile **T**	70 lbs. [311 N]	23 lbs. [102 N]
Maximum Compressive **C**	70 lbs. [311 N]	23 lbs. [102 N]
Maximum Moment **Mx**	50 in.-lbs. [5.6 Nm]	17 in.-lbs. [1.9 Nm]
Maximum Moment **My**	65 in.-lbs. [7.3 Nm]	22 in.-lbs. [2.5 Nm]
Maximum Moment **Mz**	50 in.-lbs. [5.6 Nm]	17 in.-lbs. [1.9 Nm]

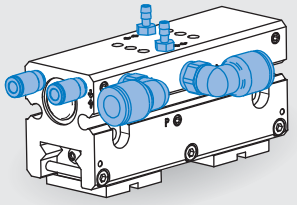
Note: Capacities are per set of jaws and are not simultaneous.

Accessory Mounting Technical Data



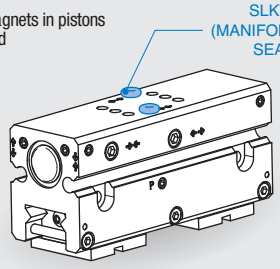
Sensors

- Magneto Resistive or Inductive Proximity available
- Capable of sensing 4 positions open and closed on both jaws
- PNP and NPN available
- Magneto resistive sensors are slot mounted, no mounting kits required
- Threaded Quick Disconnect with Built-in LED output
- Sensors mount on either side of gripper
- Sensors magnets in pistons are standard



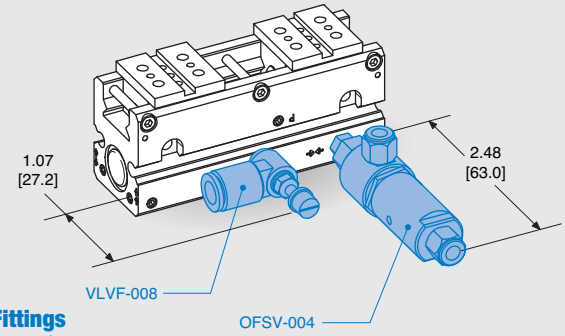
Multiple Air Port Locations

- Standard M5 Air Ports on front surface
- 3 M3 Air Port locations (Left, right, and top surface) are plugged as standard



Manifold O-Ring Seals

- Can be used to seal top Air Ports
- Seals in manifold kit are Viton
- O-Ring C'bores in customer's mounting plate must be: Ø.215 [Ø5.5] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs and wrenches needed



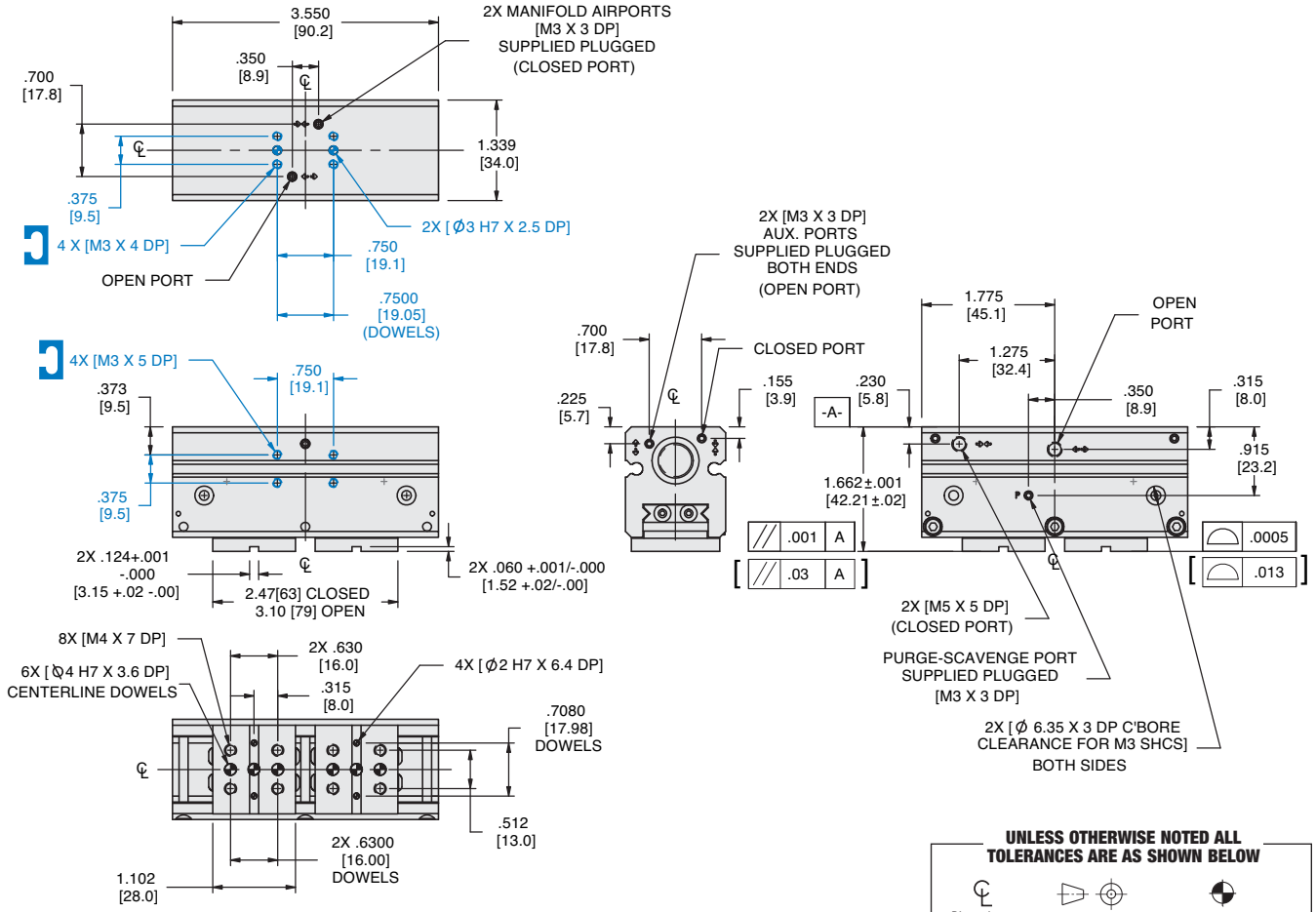
Plumbing Fittings

- Adjustable flow controls
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 3mm or 6mm O.D. Tubing
- Failsafe valve for applications
  - Where it is critical that the part being gripped not be dropped if air pressure is lost
  - Can mount directly to gripper or in-line with plumbing to gripper
  - For M5 Air Ports
- Consult factory for additional plumbing fittings

DIRECTCONNECT™

PARALLEL GRIPPERS DPP-14M-15
DIRECTCONNECT PRECISION SERIES

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ±.01 0.000 = ±.005 0.0000 = ±.0005	**Metric [mm]** [0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — SPRING — VITON SEALS

DPP-14M-15 - C - NS - V

NON-SYNCHRONOUS

SPRING **C** Spring Closed
__ Leave Blank. No Spring Option (standard)

JAW SYNCHRONIZATION **NS** Non-Synchronous Operation
__ Leave Blank for Synchronous (standard)

VITON® SEALS **V** High Temperature Viton Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Inductive Sensor Mounting Kit (Mounts 2 sensors)	OSMK-119	1 or 2
NPN Inductive Sensor (with Qk. Disc.)*	OISN-014	1, 2, 3 or 4
PNP Inductive Sensor (with Qk. Disc.)*	OISP-014	1, 2, 3 or 4
NPN Magneto Resistive Sensor (with Qk. Disc.)*†	OHSN-017	1, 2, 3 or 4
PNP Magneto Resistive Sensor (with Qk. Disc.)*†	OHSP-017	1, 2, 3 or 4
NPN Magneto Resistive Sensor 90º (with Qk. Disc.)*†	OHSN-011	1, 2, 3 or 4
PNP Magneto Resistive Sensor 90º (with Qk. Disc.)*†	OHSP-011	1, 2, 3 or 4
Quick Disconnect Cable (2 meters long)*	CABL-010	1, 2, 3 or 4
Quick Disconnect Cable (5 meters long)*	CABL-013	1, 2, 3 or 4

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit (Standard Buna-N)	SLKT-344	1
Seal Repair Kit (Viton)	SLKT-344V	1
Manifold Seal Kit (Viton® only)	SLKT-241V	1
Adjustable Flow Control-M3 Elbow-3MM OD Tube Push-in Style	VLVF-018	1 or 2
Adjustable Flow Control-M5 Elbow-6MM OD Tube Push-in Style	VLVF-008	1 or 2
Fail Safe Valve- M5	OFSV-004	1

*Sensor and cable sold separately. †Piston Magnet standard

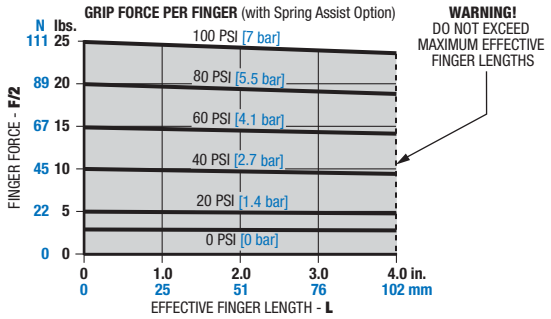
SAMPLE ORDER: DPP-14M-15-C-NS-V

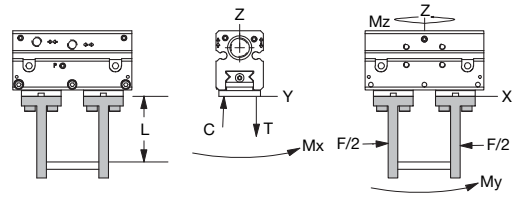
Ex: DPP-14 Metric Gripper, 15mm Stroke, Spring Closed, Non Synchronous, Viton Seals

DIRECTCONNECT™

Specifications	DPP-14M-15	
Total Rated Grip Force **F** @ 100 psi, 7 bar*	51 lbs.	227 N
Stroke	0.63 in.	15.9 mm
Weight	1.05 lbs.	0.48 Kg
Pressure Range (Without Springs)	5-100 psi	0.3-7 bar
Pressure Range (With Springs)	50-100 psi	3.4-7 bar
Cylinder Bore (2X)	0.563 in.	14.3 mm
Displacement	0.156 in^3	2.5 cm^3
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation (Without Spring/With Spring)	0.15/0.16 sec.	0.15/0.16 sec.
Accuracy	±0.001 in.	±0.03 mm
Repeatability	±0.0005 in.	±0.01 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

*With Springs

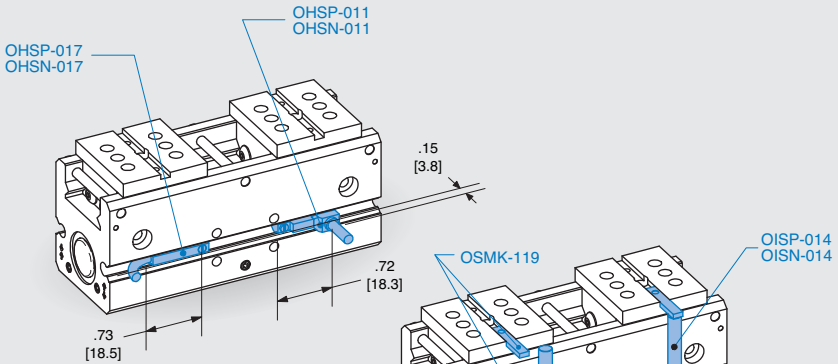




Loading Capacity	Static	Dynamic
Maximum Tensile **T**	125 lbs. [556 N]	42 lbs. [187 N]
Maximum Compressive **C**	125 lbs. [556 N]	42 lbs. [187 N]
Maximum Moment **Mx**	80 in.-lbs. [9.0 Nm]	27 in.-lbs. [3.1 Nm]
Maximum Moment **My**	105 in.-lbs. [12 Nm]	35 in.-lbs. [4.0 Nm]
Maximum Moment **Mz**	80 in.-lbs. [9.0 Nm]	27 in.-lbs. [3.1 Nm]

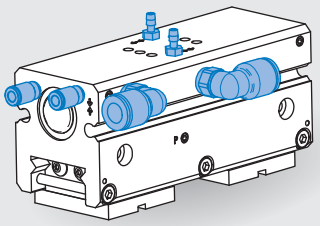
Note: Capacities are per set of jaws and are not simultaneous.

Accessory Mounting Technical Data



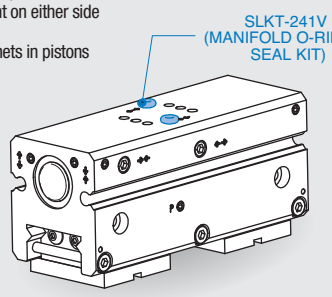
Sensors

- Magneto Resistive or Inductive Proximity available
- Capable of sensing 4 positions open and closed on both jaws
- PNP and NPN available
- Magneto resistive sensors are slot mounted, no mounting kits required
- Threaded Quick Disconnect with Built-in LED output
- Sensors mount on either side of gripper
- Sensors magnets in pistons are standard



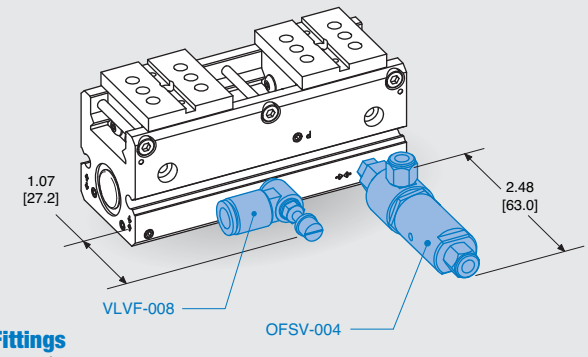
Multiple Air Port Locations

- Standard M5 Air Ports on front surface
- 3 M3 Air Port locations (Left, right, and top surface) are plugged as standard



Manifold O-Ring Seals

- Can be used to seal top Air Ports
- Seals in manifold Kit are Viton
- O-Ring C'bores in customer's mounting plate must be: Ø.215 [Ø5.5] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs and wrenches needed

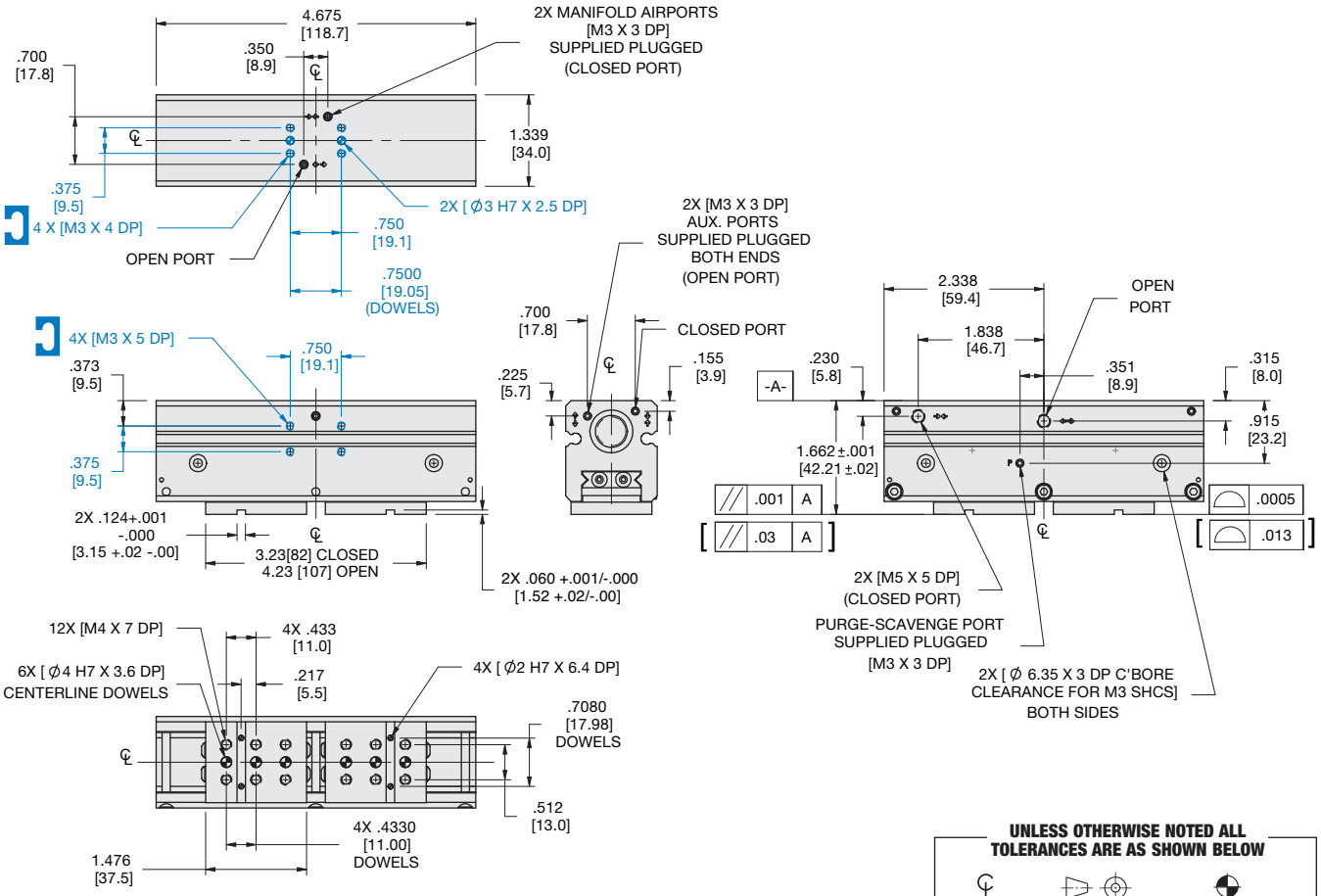


Plumbing Fittings

- Adjustable flow controls
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 3mm or 6mm O.D. Tubing
- Failsafe valve for applications
  - Where it is critical that the part being gripped not be dropped if air pressure is lost
  - Can mount directly to gripper or in-line with plumbing to gripper
  - For M5 Air Ports
- Consult factory for additional plumbing fittings

DIRECTCONNECT™

PARALLEL GRIPPERS DPP-14M-25
DIRECTCONNECT PRECISION SERIES



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	**Metric [mm]** [0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL: **DPP-14M-25** - SPRING: **C** - JAW SYNCHRONIZATION: **NS** - VITON SEALS: **V**

NON-SYNCHRONOUS

SPRING
- **C** Spring Closed
- __ Leave Blank. No Spring Option (standard)

JAW SYNCHRONIZATION
- **NS** Non-Synchronous Operation
- __ Leave Blank for Synchronous (standard)

VITON® SEALS
- **V** High Temperature Viton Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Inductive Sensor Mounting Kit (Mounts 2 sensors)	OSMK-119	1 or 2
NPN Inductive Sensor (with Qk. Disc.)*	OISN-014	1, 2, 3 or 4
PNP Inductive Sensor (with Qk. Disc.)*	OISP-014	1, 2, 3 or 4
NPN Magneto Resistive Sensor (with Qk. Disc.)*†	OHSN-017	1, 2, 3 or 4
PNP Magneto Resistive Sensor (with Qk. Disc.)*†	OHSP-017	1, 2, 3 or 4
NPN Magneto Resistive Sensor 90º (with Qk. Disc.)*†	OHSN-011	1, 2, 3 or 4
PNP Magneto Resistive Sensor 90º (with Qk. Disc.)*†	OHSP-011	1, 2, 3 or 4
Quick Disconnect Cable (2 meters long)*	CABL-010	1, 2, 3 or 4
Quick Disconnect Cable (5 meters long)*	CABL-013	1, 2, 3 or 4

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit (Standard Buna-N)	SLKT-344	1
Seal Repair Kit (Viton)	SLKT-344V	1
Manifold Seal Kit (Viton® only)	SLKT-241V	1
Adjustable Flow Control-M3 Elbow-3MM OD Tube Push-in Style	VLVF-018	1 or 2
Adjustable Flow Control-M5 Elbow-6MM OD Tube Push-in Style	VLVF-008	1 or 2
Fail Safe Valve- M5	OFSV-004	1

*Sensor and cable sold separately. †Piston Magnet standard

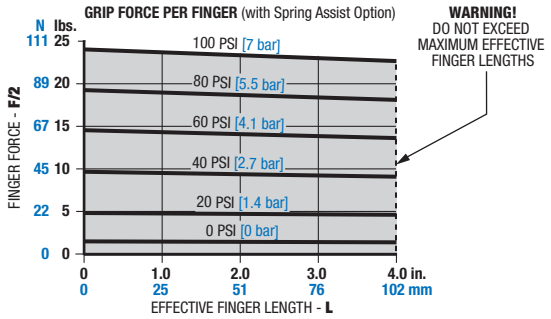
SAMPLE ORDER: DPP-14M-25-C-NS-V

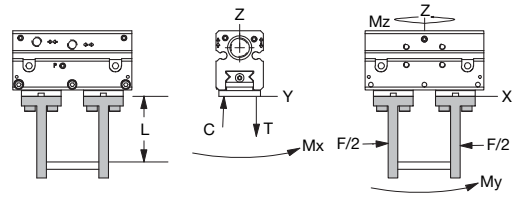
Ex: DPP-14 Metric Gripper, 25mm Stroke, Spring Closed, Non Synchronous, Viton Seals

DIRECTCONNECT™

Specifications	DPP-14M-25	
Total Rated Grip Force **F** @ 100 psi, 7 bar*	48 lbs.	214 N
Stroke	1.00 in.	25.4 mm
Weight	1.25 lbs.	0.57 Kg
Pressure Range (Without Springs)	5-100 psi	0.3-7 bar
Pressure Range (With Springs)	50-100 psi	3.4-7 bar
Cylinder Bore (2X)	0.563 in.	14.3 mm
Displacement	0.249 in^3	4.1 cm^3
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation (Without Spring/With Spring)	0.19/0.20 sec.	0.19/0.20 sec.
Accuracy	±0.001 in.	±0.03 mm
Repeatability	±0.0005 in.	±0.01 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

*With Springs

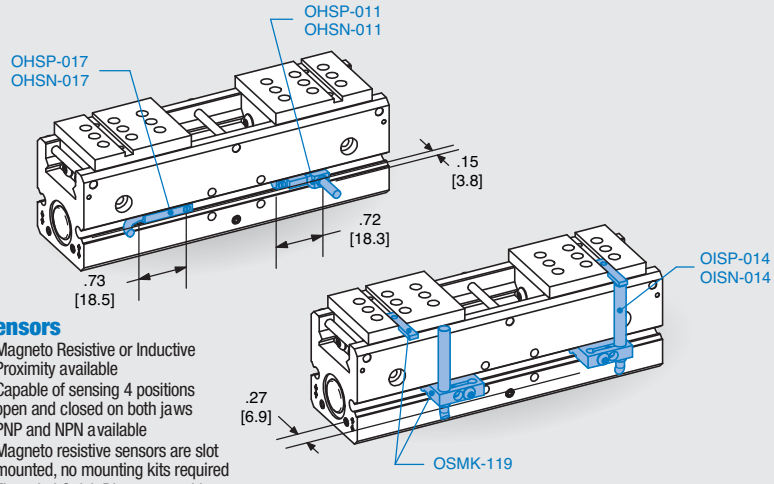




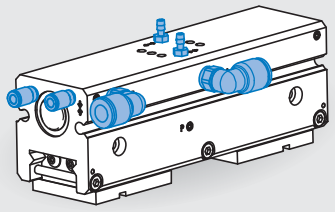
Loading Capacity	Static	Dynamic
Maximum Tensile **T**	165 lbs. [734 N]	55 lbs. [245 N]
Maximum Compressive **C**	165 lbs. [734 N]	55 lbs. [245 N]
Maximum Moment **Mx**	100 in.-lbs. [11 Nm]	33 in.-lbs. [3.7 Nm]
Maximum Moment **My**	125 in.-lbs. [14 Nm]	42 in.-lbs. [4.7 Nm]
Maximum Moment **Mz**	100 in.-lbs. [11 Nm]	33 in.-lbs. [3.7 Nm]

Note: Capacities are per set of jaws and are not simultaneous.

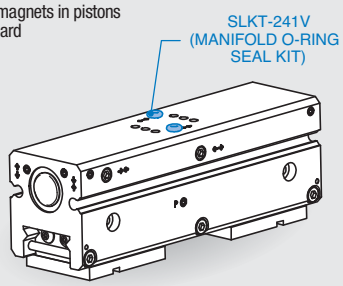
Accessory Mounting Technical Data



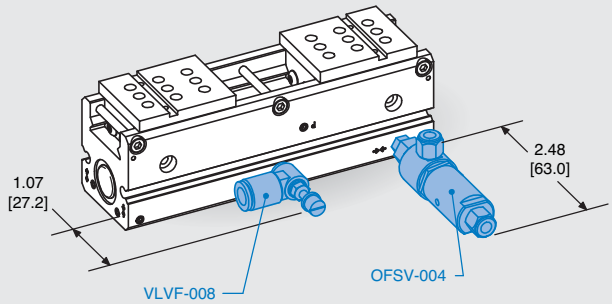
Sensors
- Magneto Resistive or Inductive Proximity available
- Capable of sensing 4 positions open and closed on both jaws
- PNP and NPN available
- Magneto resistive sensors are slot mounted, no mounting kits required
- Threaded Quick Disconnect with Built-in LED output
- Sensors mount on either side of gripper
- Sensors magnets in pistons are standard



Multiple Air Port Locations
- Standard M5 Air Ports on front surface
- 3 M3 Air Port locations (Left, right, and top surface) are plugged as standard



Manifold O-Ring Seals
- Can be used to seal top Air Ports
- Seals in manifold kit are Viton
- O-Ring C'bores in customer's mounting plate must be: Ø.215 [Ø5.5] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs and wrenches needed

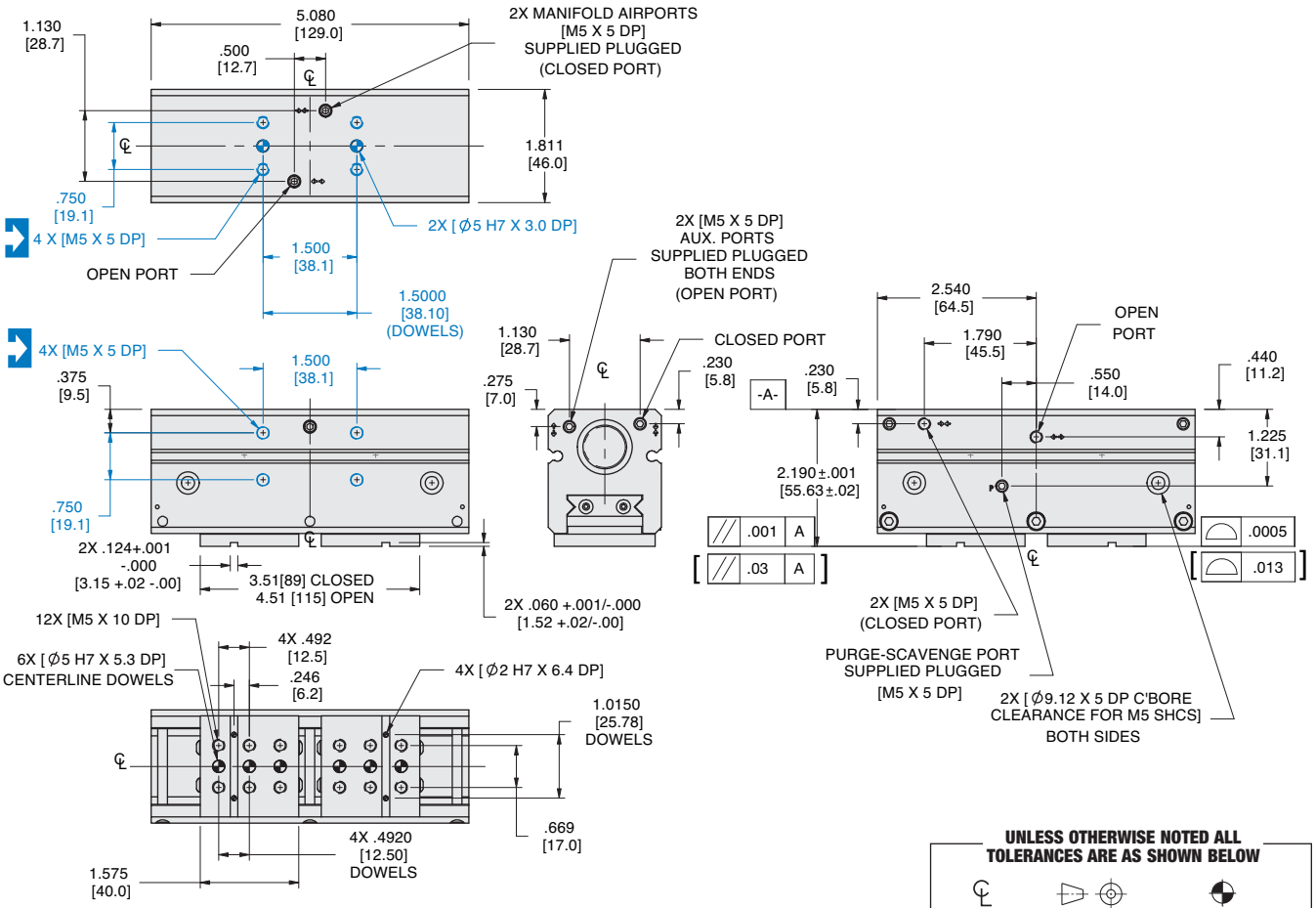


Plumbing Fittings
- Adjustable flow controls
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 3mm or 6mm O.D. Tubing
- Failsafe valve for applications
  - Where it is critical that the part being gripped not be dropped if air pressure is lost
  - Can mount directly to gripper or in-line with plumbing to gripper
  - For M5 Air Ports
- Consult factory for additional plumbing fittings

DIRECTCONNECT™

PARALLEL GRIPPERS DPP-20M-25
DIRECTCONNECT PRECISION SERIES

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ±.01 0.000 = ±.005 0.0000 = ±.0005	**Metric [mm]** [0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — SPRING — VITON SEALS

DPP-20M-25 - C - NS - V

NON-SYNCHRONOUS

SPRING **C** Spring Closed
__ Leave Blank. No Spring Option (standard)

JAW SYNCHRONIZATION **NS** Non-Synchronous Operation
__ Leave Blank for Synchronous (standard)

VITON® SEALS **V** High Temperature Viton Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Inductive Sensor Mounting Kit (Mounts 2 sensors)	OSMK-120	1 or 2
NPN Inductive Sensor (with Qk. Disc.)*	OISN-014	1, 2, 3 or 4
PNP Inductive Sensor (with Qk. Disc.)*	OISP-014	1, 2, 3 or 4
NPN Magneto Resistive Sensor (with Qk. Disc.)*†	OHSN-017	1, 2, 3 or 4
PNP Magneto Resistive Sensor (with Qk. Disc.)*†	OHSP-017	1, 2, 3 or 4
NPN Magneto Resistive Sensor 90° (with Qk. Disc.)*†	OHSN-011	1, 2, 3 or 4
PNP Magneto Resistive Sensor 90° (with Qk. Disc.)*†	OHSP-011	1, 2, 3 or 4
Quick Disconnect Cable (2 meters long)*	CABL-010	1, 2, 3 or 4
Quick Disconnect Cable (5 meters long)*	CABL-013	1, 2, 3 or 4

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit (Standard Buna-N)	SLKT-345	1
Seal Repair Kit (Viton)	SLKT-345V	1
Manifold Seal Kit (Viton® only)	SLKT-242V	1
Adjustable Flow Control-M5 Elbow-6MM OD Tube Push-in Style	VLVF-008	1 or 2
Fail Safe Valve- M5	OFSV-004	1

*Sensor and cable sold separately. †Piston Magnet standard

SAMPLE ORDER: DPP-20M-25-C-NS-V

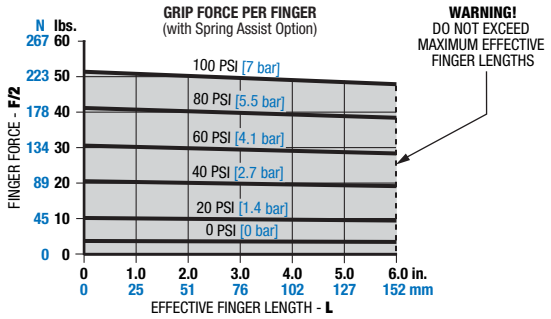
Ex: DPP-20 Metric Gripper, 25mm Stroke, Spring Closed, Non Synchronous, Viton Seals

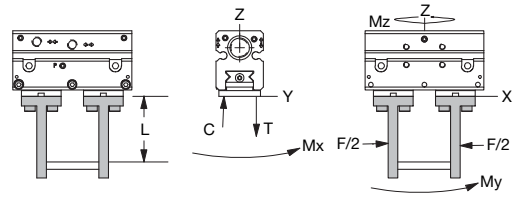
DIRECTCONNECT™

PARALLEL GRIPPERS DPP-20M-25
DIRECTCONNECT PRECISION SERIES

Specifications	DPP-20M-25	
Total Rated Grip Force **F** @ 100 psi, 7 bar*	103 lbs.	458 N
Stroke	1.00 in.	25.4 mm
Weight	2.25 lbs.	1.02 Kg
Pressure Range (Without Springs)	5-100 psi	0.3-7 bar
Pressure Range (With Springs)	40-100 psi	2.8-7 bar
Cylinder Bore (2X)	0.813 in.	20.7 mm
Displacement	0.519 in^3	8.5 cm^3
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation (Without Spring/With Spring)	0.20/0.22 sec.	0.20/0.22 sec.
Accuracy	±0.001 in.	±0.03 mm
Repeatability	±0.0005 in.	±0.01 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

*With Springs

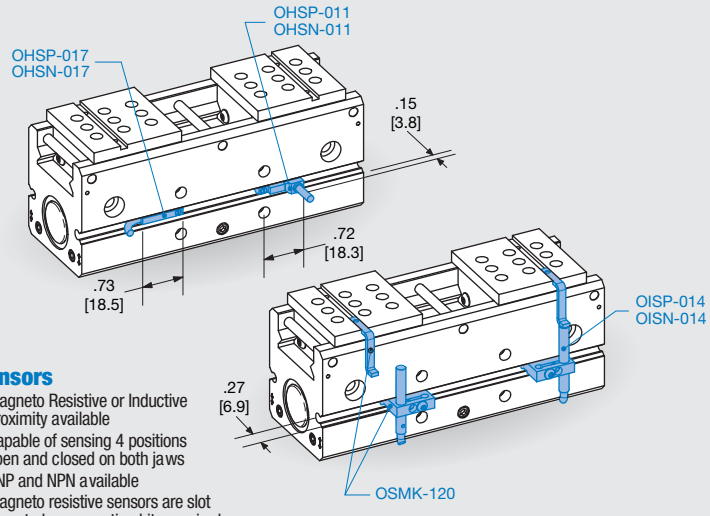




Loading Capacity	Static	Dynamic
Maximum Tensile **T**	150 lbs. [667 N]	50 lbs. [222 N]
Maximum Compressive **C**	150 lbs. [667 N]	50 lbs. [222 N]
Maximum Moment **Mx**	300 in.-lbs. [34 Nm]	100 in.-lbs. [11 Nm]
Maximum Moment **My**	350 in.-lbs. [40 Nm]	117 in.-lbs. [13 Nm]
Maximum Moment **Mz**	300 in.-lbs. [34 Nm]	100 in.-lbs. [11 Nm]

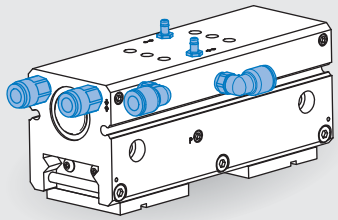
Note: Capacities are per set of jaws and are not simultaneous.

Accessory Mounting Technical Data



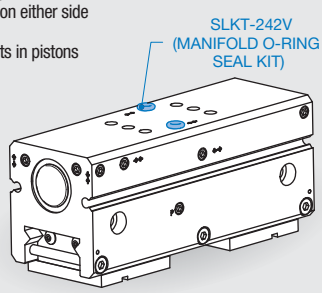
Sensors

- Magneto Resistive or Inductive Proximity available
- Capable of sensing 4 positions open and closed on both jaws
- PNP and NPN available
- Magneto resistive sensors are slot mounted, no mounting kits required
- Threaded Quick Disconnect with Built-in LED output
- Sensors mount on either side of gripper
- Sensors magnets in pistons are standard



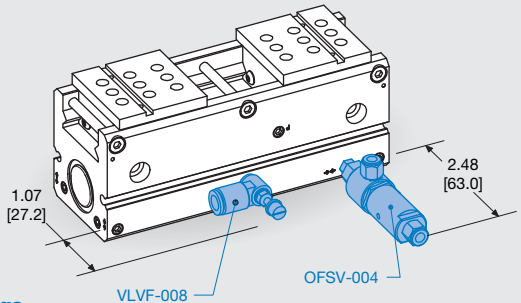
Multiple Air Port Locations

- Standard M5 Air Ports on front surface
- 3 M5 Air Port locations (Left, right, and top surface) are plugged as standard



Manifold O-Ring Seals

- Can be used to seal top Air Ports
- Seals in manifold kit are Viton
- O-Ring C'bores in customer's mounting plate must be: Ø.290 [Ø7.4] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs and wrenches needed



Plumbing Fittings

- Adjustable flow controls
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm O.D. Tubing
- Failsafe valve for applications
  - Where it is critical that the part being gripped not be dropped if air pressure is lost
  - Can mount directly to gripper or in-line with plumbing to gripper
  - For M5 Air Ports
- Consult factory for additional plumbing fittings

DIRECTCONNECT™

PARALLEL GRIPPERS DPP-20M-38
DIRECTCONNECT PRECISION SERIES

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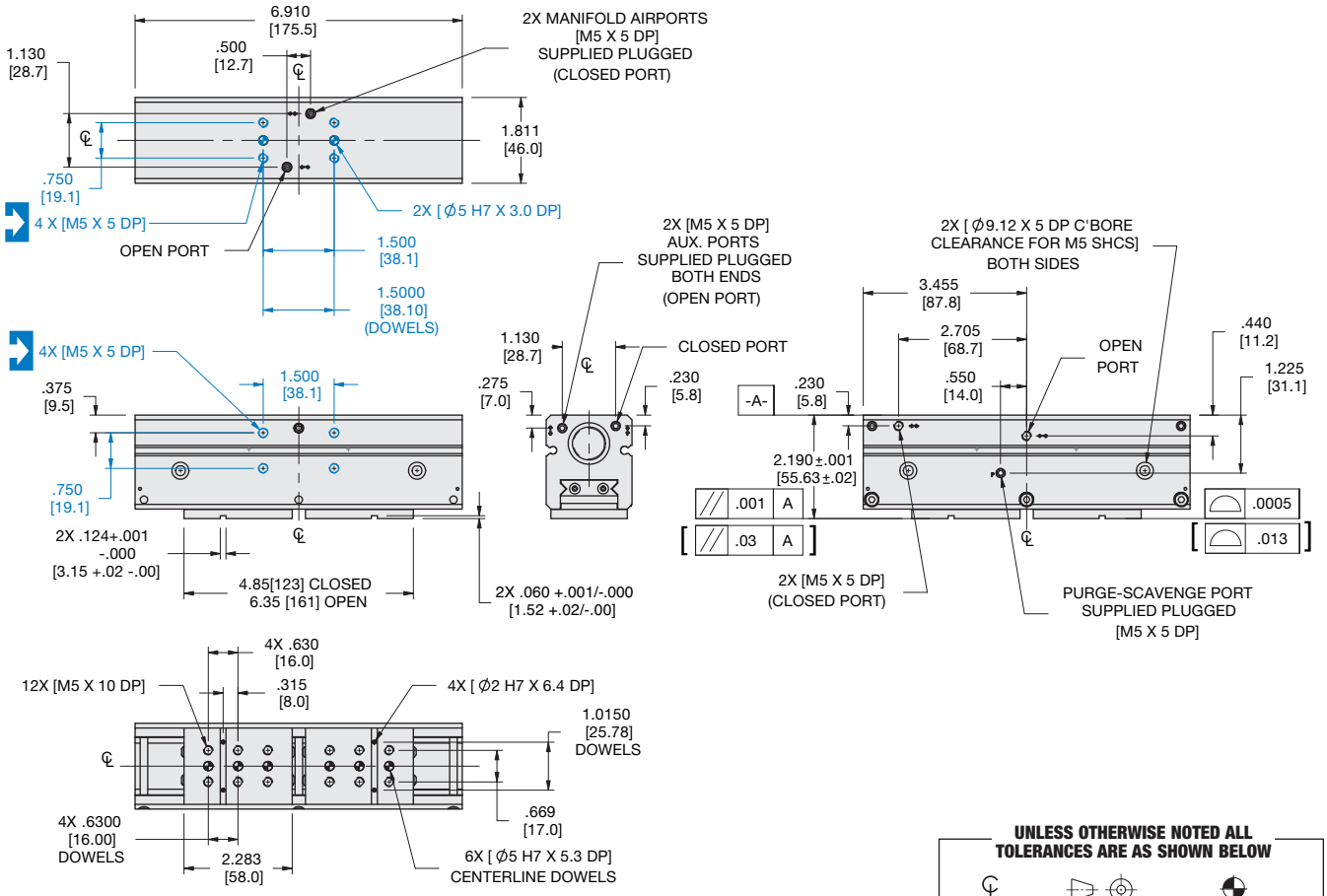


UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

- Dimensions are symmetrical about centerline
- Third Angle Projection
- All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
- Metric Threads Course Pitch
- **Imperial in.** 0.00 = ±.01, 0.000 = ±.005, 0.0000 = ±.0005
- **Metric [mm]** [0.] = [±.25], [0.0] = [±.13], [0.00] = [±.013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SPRING | VITON SEALS

DPP-20M-38 - C - NS - V

NON-SYNCHRONOUS

SPRING	**C**	Spring Closed
	__	Leave Blank. No Spring Option (standard)
JAW SYNCHRONIZATION	**NS**	Non-Synchronous Operation
	__	Leave Blank for Synchronous (standard)
VITON® SEALS	**V**	High Temperature Viton Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Inductive Sensor Mounting Kit (Mounts 2 sensors)	OSMK-120	1 or 2
NPN Inductive Sensor (with Qk. Disc.)*	OISN-014	1, 2, 3 or 4
PNP Inductive Sensor (with Qk. Disc.)*	OISP-014	1, 2, 3 or 4
NPN Magneto Resistive Sensor (with Qk. Disc.)*†	OHSN-017	1, 2, 3 or 4
PNP Magneto Resistive Sensor (with Qk. Disc.)*†	OHSP-017	1, 2, 3 or 4
NPN Magneto Resistive Sensor 90° (with Qk. Disc.)*†	OHSN-011	1, 2, 3 or 4
PNP Magneto Resistive Sensor 90° (with Qk. Disc.)*†	OHSP-011	1, 2, 3 or 4
Quick Disconnect Cable (2 meters long)*	CABL-010	1, 2, 3 or 4
Quick Disconnect Cable (5 meters long)*	CABL-013	1, 2, 3 or 4

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit (Standard Buna-N)	SLKT-345	1
Seal Repair Kit (Viton)	SLKT-345V	1
Manifold Seal Kit (Viton® only)	SLKT-242V	1
Adjustable Flow Control-M5 Elbow-6MM OD Tube Push-in Style	VLVF-008	1 or 2
Fail Safe Valve- M5	OFSV-004	1

*Sensor and cable sold separately. †Piston Magnet standard

SAMPLE ORDER: DPP-20M-38-C-NS-V

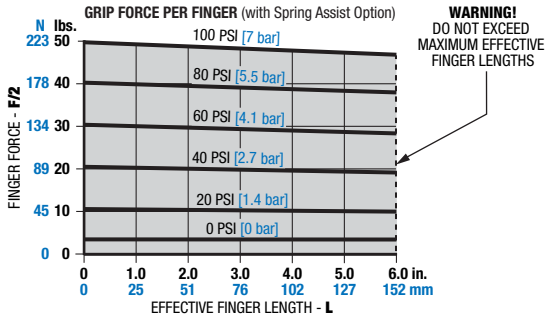
Ex: DPP-20 Metric Gripper, 38mm Stroke, Spring Closed, Non Synchronous, Viton Seals

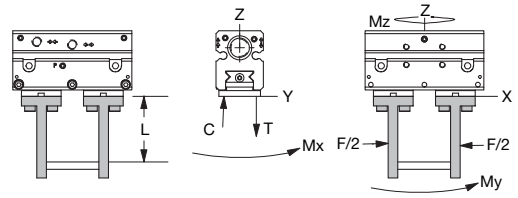
DIRECTCONNECT™

PARALLEL GRIPPERS DPP-20M-38
DIRECTCONNECT PRECISION SERIES

Specifications	DPP-20M-38	
Total Rated Grip Force **F** @ 100 psi, 7 bar*	101 lbs.	449 N
Stroke	1.50 in.	38.1 mm
Weight	3.10 lbs.	1.41 Kg
Pressure Range (Without Springs)	5-100 psi	0.3-7 bar
Pressure Range (With Springs)	30-100 psi	2.1-7 bar
Cylinder Bore (2X)	0.813 in.	20.7 mm
Displacement	0.779 in^3	12.8 cm^3
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation (Without Spring/With Spring)	0.24/0.29 sec.	0.24/0.29 sec.
Accuracy	±0.001 in.	±0.03 mm
Repeatability	±0.0005 in.	±0.01 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

*With Springs

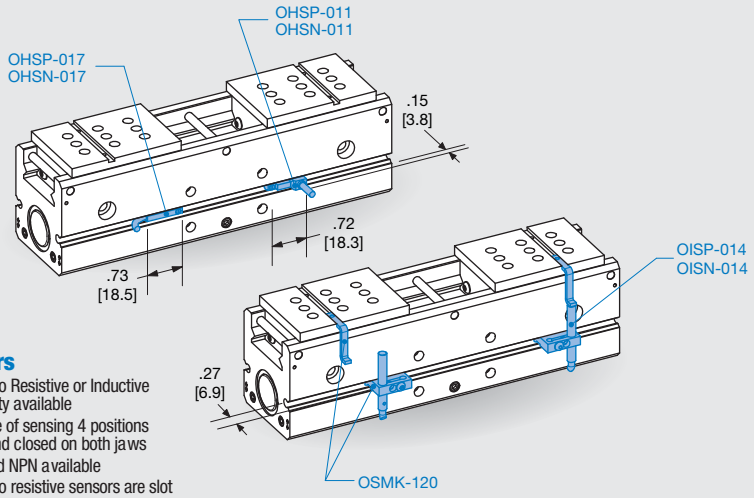




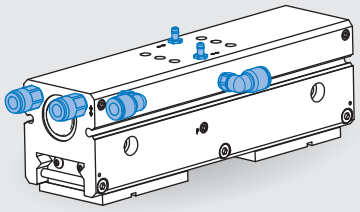
Loading Capacity	Static	Dynamic
Maximum Tensile **T**	200 lbs. [890 N]	67 lbs. [298 N]
Maximum Compressive **C**	200 lbs. [890 N]	67 lbs. [298 N]
Maximum Moment **Mx**	400 in.-lbs. [45 Nm]	133 in.-lbs. [15 Nm]
Maximum Moment **My**	450 in.-lbs. [51 Nm]	150 in.-lbs. [17 Nm]
Maximum Moment **Mz**	400 in.-lbs. [45 Nm]	133 in.-lbs. [15 Nm]

Note: Capacities are per set of jaws and are not simultaneous.

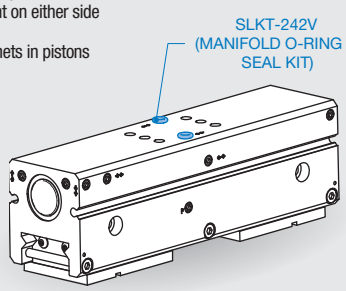
Accessory Mounting Technical Data



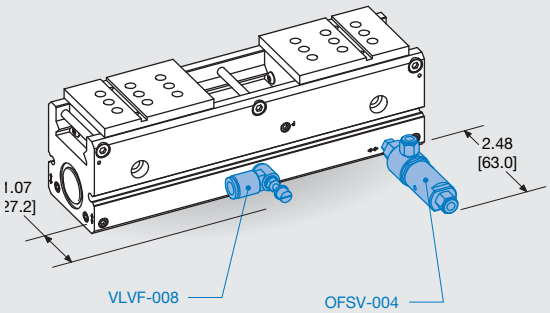
Sensors
- Magneto Resistive or Inductive Proximity available
- Capable of sensing 4 positions open and closed on both jaws
- PNP and NPN available
- Magneto resistive sensors are slot mounted, no mounting kits required
- Threaded Quick Disconnect with Built-in LED output
- Sensors mount on either side of gripper
- Sensors magnets in pistons are standard



Multiple Air Port Locations
- Standard M5 Air Ports on front surface
- 3 M5 Air Port locations (Left, right, and top surface) are plugged as standard



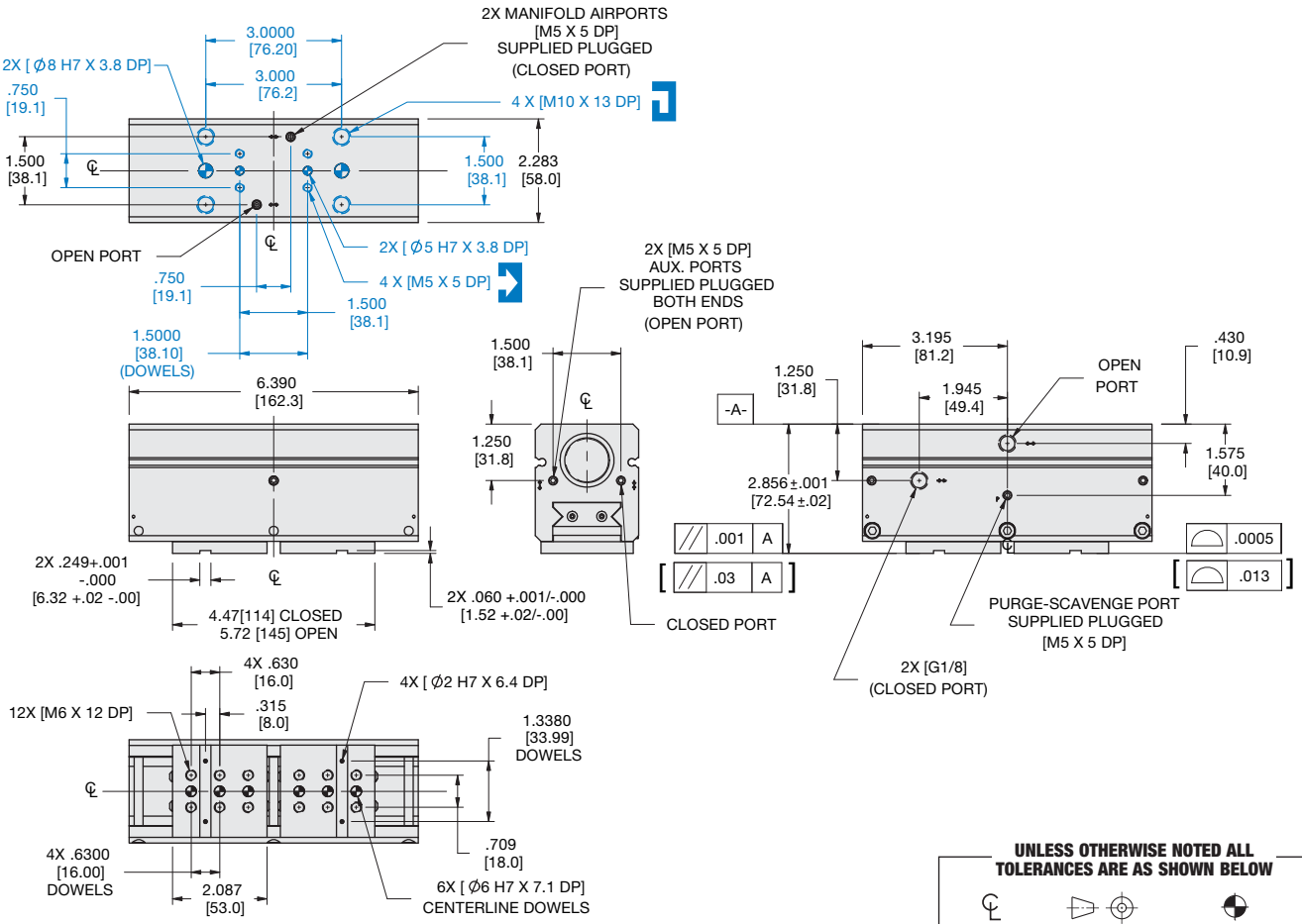
Manifold O-Ring Seals
- Can be used to seal top Air Ports
- Seals in manifold kit are Viton
- O-Ring C'bores in customer's mounting plate must be: Ø.290 [Ø7.4] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs and wrenches needed



Plumbing Fittings
- Adjustable flow controls
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm O.D. Tubing
- Failsafe valve for applications
  - Where it is critical that the part being gripped not be dropped if air pressure is lost
  - Can mount directly to gripper or in-line with plumbing to gripper
  - For M5 Air Ports
- Consult factory for additional plumbing fittings

DIRECTCONNECT™

PARALLEL GRIPPERS DPP-28M-31
DIRECTCONNECT PRECISION SERIES



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	**Metric [mm]** [0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SPRING | VITON SEALS

DPP-28M-31 - C - NS - V

NON-SYNCHRONOUS

SPRING **C** Spring Closed
__ Leave Blank. No Spring Option (standard)

JAW SYNCHRONIZATION **NS** Non-Synchronous Operation
__ Leave Blank for Synchronous (standard)

VITON® SEALS **V** High Temperature Viton Seals

SAMPLE ORDER: DPP-28M-31-C-NS-V
Ex: DPP-28 Metric Gripper, 31mm Stroke, Spring Closed, Non Synchronous, Viton Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Inductive Sensor Mounting Kit (Mounts 2 sensors)	OSMK-121	1 or 2
NPN Inductive Sensor (with Qk. Disc.)*	OISN-014	1, 2, 3 or 4
PNP Inductive Sensor (with Qk. Disc.)*	OISP-014	1, 2, 3 or 4
NPN Magneto Resistive Sensor (with Qk. Disc.)*†	OHSN-017	1, 2, 3 or 4
PNP Magneto Resistive Sensor (with Qk. Disc.)*†	OHSP-017	1, 2, 3 or 4
NPN Magneto Resistive Sensor 90° (with Qk. Disc.)*†	OHSN-011	1, 2, 3 or 4
PNP Magneto Resistive Sensor 90° (with Qk. Disc.)*†	OHSP-011	1, 2, 3 or 4
Quick Disconnect Cable (2 meters long)*	CABL-010	1, 2, 3 or 4
Quick Disconnect Cable (5 meters long)*	CABL-013	1, 2, 3 or 4

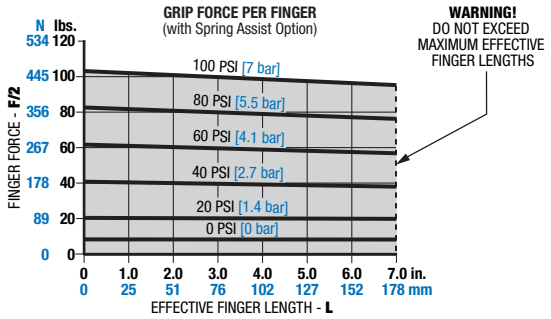
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit (Standard Buna-N)	SLKT-346	1
Seal Repair Kit (Viton)	SLKT-346V	1
Manifold Seal Kit (Viton® only)	SLKT-243V	1
Adjustable Flow Control-M5 Elbow-6MM OD Tube Push-in Style	VLVF-008	1 or 2
Adjustable Flow Control-G 1/8 Elbow-6MM OD Tube Push-in Style	VLVF-005	1 or 2
Adapter G 1/8 Male to 1/8 NPT Female	PLFT-025	1 or 2
Fail Safe Valve G 1/8 (1/8 BSPP)	OFSV-005	1

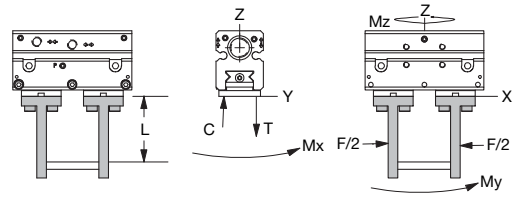
*Sensor and cable sold separately. †Piston Magnet standard

DIRECTCONNECT™

Specifications	DPP-28M-31	
Total Rated Grip Force **F** @ 100 psi, 7 bar*	205 lbs.	912 N
Stroke	1.25 in.	31.8 mm
Weight	4.55 lbs.	2.06 Kg
Pressure Range (Without Springs)	5-100 psi	0.3-7 bar
Pressure Range (With Springs)	30-100 psi	2.1-7 bar
Cylinder Bore (2X)	1.125 in.	28.6 mm
Displacement	1.243 in^3	20.4 cm^3
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation (Without Spring/With Spring)	0.19/0.25 sec.	0.19/0.25 sec.
Accuracy	±0.001 in.	±0.03 mm
Repeatability	±0.0005 in.	±0.01 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

*With Springs

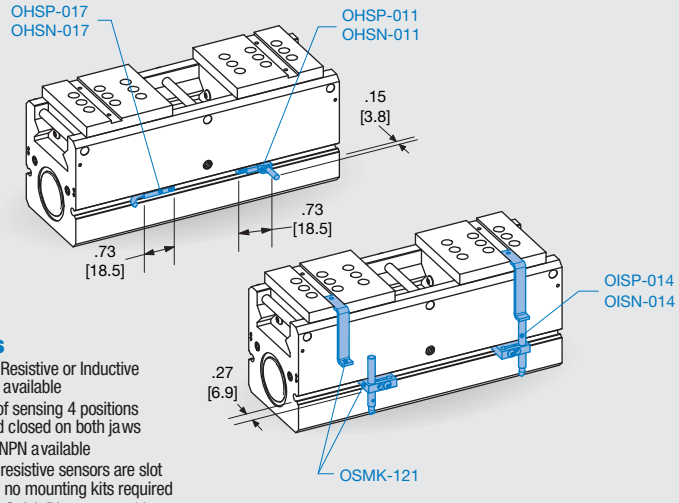




Loading Capacity	Static	Dynamic
Maximum Tensile **T**	225 lbs. [1001 N]	75 lbs. [334 N]
Maximum Compressive **C**	225 lbs. [1001 N]	75 lbs. [334 N]
Maximum Moment **Mx**	570 in.-lbs. [64 Nm]	190 in.-lbs. [21 Nm]
Maximum Moment **My**	685 in.-lbs. [77 Nm]	228 in.-lbs. [26 Nm]
Maximum Moment **Mz**	570 in.-lbs. [64 Nm]	190 in.-lbs. [21 Nm]

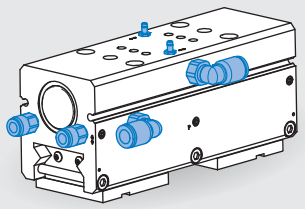
Note: Capacities are per set of jaws and are not simultaneous.

Accessory Mounting Technical Data



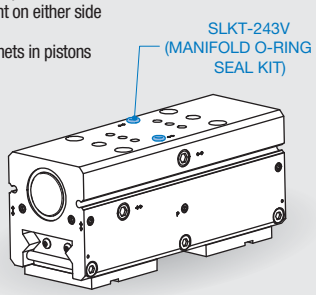
Sensors

- Magneto Resistive or Inductive Proximity available
- Capable of sensing 4 positions open and closed on both jaws
- PNP and NPN available
- Magneto resistive sensors are slot mounted, no mounting kits required
- Threaded Quick Disconnect with Built-in LED output
- Sensors mount on either side of gripper
- Sensors magnets in pistons are standard



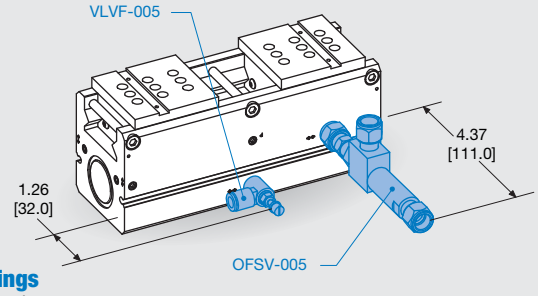
Multiple Air Port Locations

- Standard G 1/8 (1/8 BSPP) Air Ports on front surface
- 3 M5 Air Port locations (Left, right, and top surface) are plugged as standard



Manifold O-Ring Seals

- Can be used to seal top Air Ports
- Seals in manifold kit are Viton
- O-Ring C'bores in customer's mounting plate must be: Ø.290 [Ø7.4] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs and wrenches needed

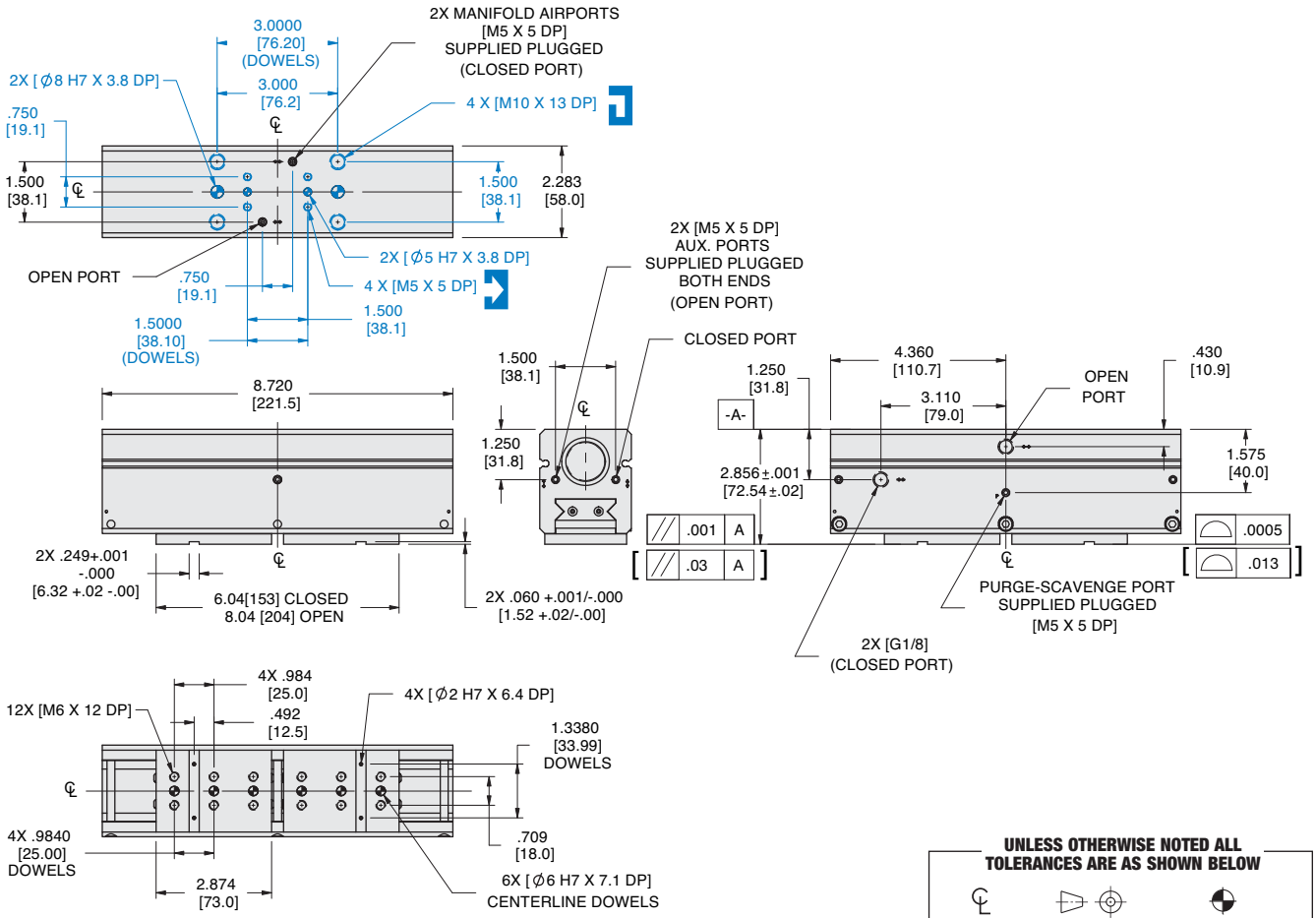


Plumbing Fittings

- Adjustable flow controls
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm O.D. Tubing
- Failsafe valve for applications
  - Where it is critical that the part being gripped not be dropped if air pressure is lost
  - Can mount directly to gripper or in-line with plumbing to gripper
  - For G 1/8 (1/8 BSPP) Air Ports
- Consult factory for additional plumbing fittings

DIRECTCONNECT™

PARALLEL GRIPPERS DPP-28M-50
DIRECTCONNECT PRECISION SERIES



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	**Metric [mm]** [0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — SPRING — VITON SEALS

DPP-28M-50 - C - NS - V

NON-SYNCHRONOUS

SPRING **C** Spring Closed
__ Leave Blank. No Spring Option (standard)

JAW SYNCHRONIZATION **NS** Non-Synchronous Operation
__ Leave Blank for Synchronous (standard)

VITON® SEALS **V** High Temperature Viton Seals

SAMPLE ORDER: DPP-28M-50-C-NS-V

Ex: DPP-28 Metric Gripper, 50mm Stroke, Spring Closed, Non Synchronous, Viton Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Inductive Sensor Mounting Kit (Mounts 2 sensors)	OSMK-121	1 or 2
NPN Inductive Sensor (with Qk. Disc.)*	OISN-014	1, 2, 3 or 4
PNP Inductive Sensor (with Qk. Disc.)*	OISP-014	1, 2, 3 or 4
NPN Magneto Resistive Sensor (with Qk. Disc.)*†	OHSN-017	1, 2, 3 or 4
PNP Magneto Resistive Sensor (with Qk. Disc.)*†	OHSP-017	1, 2, 3 or 4
NPN Magneto Resistive Sensor 90º (with Qk. Disc.)*†	OHSN-011	1, 2, 3 or 4
PNP Magneto Resistive Sensor 90º (with Qk. Disc.)*†	OHSP-011	1, 2, 3 or 4
Quick Disconnect Cable (2 meters long)*	CABL-010	1, 2, 3 or 4
Quick Disconnect Cable (5 meters long)*	CABL-013	1, 2, 3 or 4

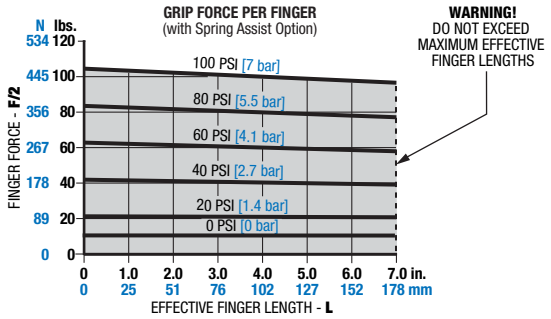
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit (Standard Buna-N)	SLKT-346	1
Seal Repair Kit (Viton)	SLKT-346V	1
Manifold Seal Kit (Viton® only)	SLKT-243V	1
Adjustable Flow Control-M5 Elbow-6MM OD Tube Push-in Style	VLVF-008	1 or 2
Adjustable Flow Control-G 1/8 Elbow-6MM OD Tube Push-in Style	VLVF-005	1 or 2
Adapter G 1/8 Male to 1/8 NPT Female	PLFT-025	1 or 2
Fail Safe Valve G 1/8 (1/8 BSPP)	OFSV-005	1

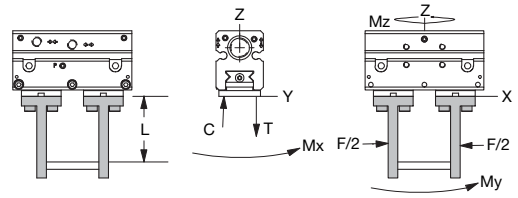
*Sensor and cable sold separately. †Piston Magnet standard

DIRECTCONNECT™

Specifications	DPP-28M-50	
Total Rated Grip Force **F** @ 100 psi, 7 bar*	210 lbs.	934 N
Stroke	2.00 in.	50.8 mm
Weight	6.25 lbs.	2.83 Kg
Pressure Range (Without Springs)	5-100 psi	0.3-7 bar
Pressure Range (With Springs)	40-100 psi	2.8-7 bar
Cylinder Bore (2X)	1.125 in.	28.6 mm
Displacement	1.988 in^3	32.6 cm^3
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation (Without Spring/With Spring)	0.23/0.30 sec.	0.23/0.30 sec.
Accuracy	±0.001 in.	±0.03 mm
Repeatability	±0.0005 in.	±0.01 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

*With Springs

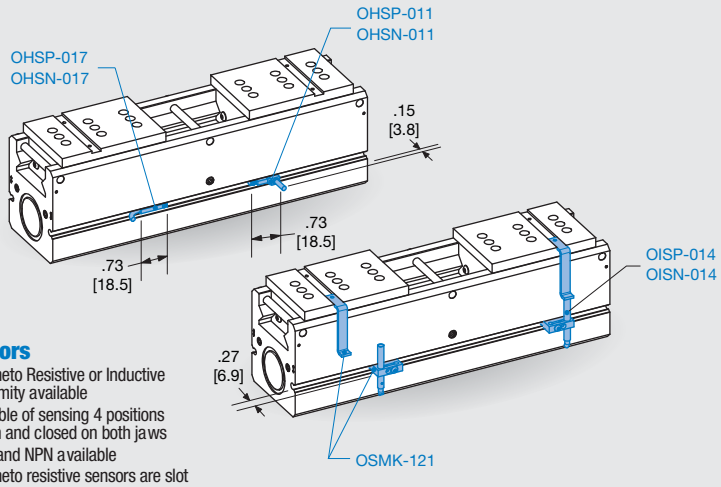




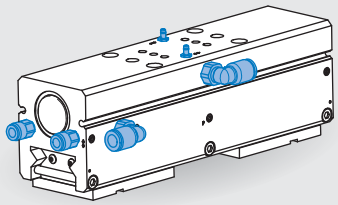
Loading Capacity	Static	Dynamic
Maximum Tensile **T**	310 lbs. [1379 N]	103 lbs. [458 N]
Maximum Compressive **C**	310 lbs. [1379 N]	103 lbs. [458 N]
Maximum Moment $\mathbf{M_X}$	785 in.-lbs. [89 Nm]	262 in.-lbs. [30 Nm]
Maximum Moment $\mathbf{M_Y}$	940 in.-lbs. [106 Nm]	313 in.-lbs. [35 Nm]
Maximum Moment $\mathbf{M_Z}$	785 in.-lbs. [89 Nm]	262 in.-lbs. [30 Nm]

Note: Capacities are per set of jaws and are not simultaneous.

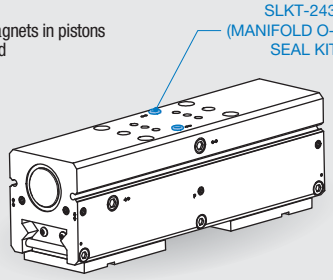
Accessory Mounting Technical Data



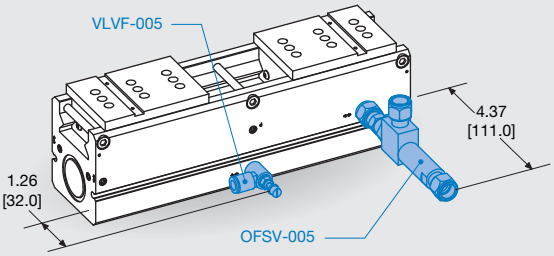
Sensors
- Magneto Resistive or Inductive Proximity available
- Capable of sensing 4 positions open and closed on both jaws
- PNP and NPN available
- Magneto resistive sensors are slot mounted, no mounting kits required
- Threaded Quick Disconnect with Built-in LED output
- Sensors mount on either side of gripper
- Sensors magnets in pistons are standard



Multiple Air Port Locations
- Standard G 1/8 (1/8 BSPP) Air Ports on front surface
- 3 M5 Air Port locations (Left, right, and top surface) are plugged as standard



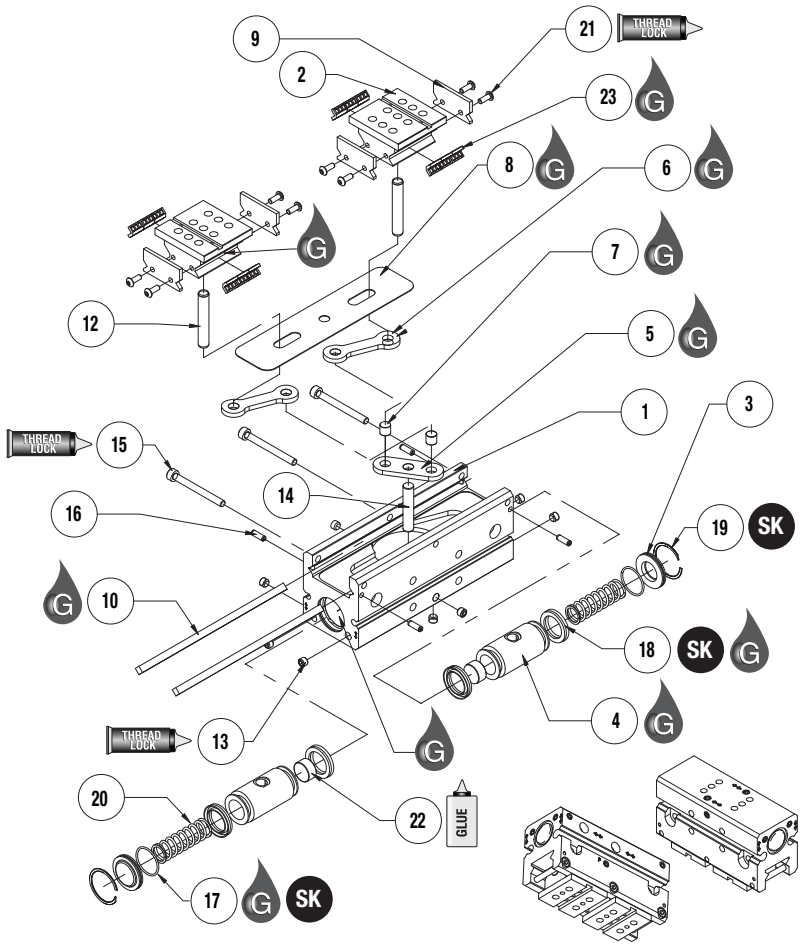
Manifold O-Ring Seals
- Can be used to seal top Air Ports
- Seals in manifold kit are Viton
- O-Ring C'bores in customer's mounting plate must be: Ø.290 [Ø7.4] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs and wrenches needed



Plumbing Fittings
- Adjustable flow controls
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm O.D. Tubing
- Failsafe valve for applications
  - Where it is critical that the part being gripped not be dropped if air pressure is lost
  - Can mount directly to gripper or in-line with plumbing to gripper
  - For G 1/8 (1/8 BSPP) Air Ports
- Consult factory for additional plumbing fittings

DIRECTCONNECT™

DPP SERIES EXPLODED VIEW



Item	Qty	Name
01	1	Body
02	2	Jaw
03 2		Cap
04	2	Piston
05	1	Equalizer
06	2	Link
07	2	Equalizer Pin
08	1	Linkage Cover
09	4	Wiper
10	2	Way
12	2	Drive Pin
13	10	Set Screw – Air & Purge Plug
14	1	Pivot Pin
15	3	Preload Screw
16	4	Way Locating Pin
17	2	O-Ring – Cap Seal
18	4	U-Cup – Piston Seal
19	2	Retaining Ring
20	2	Spring for -C Spring Closed Option
21*	–	BHCS – Wiper Mounting Screw
22*	–	Magnet
23*	–	S'assy, Cage & Roller Bearings

Notes:

1) Contact the Robohand Sales Department for a complete spare parts list with order number and prices.
2)* Item #21 quantity varies per gripper size. Size -10M has 4 per unit. Sizes -14M, -20M, & -28M have 8 per unit.
3)* Item #22 quantity varies per gripper size. Size -10M has 4 per unit. Sizes -14M, -20M, & -28M have 2 per unit.
4)* Item #23 quantity and number of different sub-assemblies varies per gripper model. Contact Sales to determine the correct quantity and part numbers needed.

SK Seal Repair Kit Order #'s See Product Data Sheets

Assembly Procedure:

1) Lubricate #1 body (jaw cavity & bore).
2) Plug cross ports in body with #13 set screws.
3) Press #14 pivot pin into body.
4) Insert #22 magnet(s) into each #4 piston making sure magnets repel each other between pistons.
5) Lubricate and install #18 seals onto pistons.
6) Insert pistons into body with magnet sides facing in toward pivot pin.
7) Press #7 equalizer pins into #5 equalizer.
8) Assemble equalizer with #6 links and place onto pivot pin in body making sure holes in links line up with holes in pistons.
9) Place #8 linkage cover over equalizer and link assembly and seat in body pocket.
10) Press #12 drive pin into each #2 jaw.
11) Lubricate jaw bearing surfaces and install #9 wiper on each jaw end with #21 mounting screws.
12) Place #23 cage and roller bearing assemblies on jaw bearing grooves.
13) Place jaws into body aligning the drive pins with the holes in the linkage cover, links, and pistons. If jaws have off center key slot in them, jaws should be installed with this slot farther away from the gripper's center.
14) Slide #10 ways into body trapping them between body and jaws.
15) Install #16 way locating pins at each end of body to secure ways.
16) For –C spring closed option, insert #20 springs into pistons.
17) Place # 17 seals onto #3 caps and install onto body with #19 retaining rings.
18) Install #15 preload screws and torque per preload adjustment procedure.

Preload Adjustment Procedure:

1) Tighten center preload screw first and then outer ones to the torque specification in step 2.
2) Use the following torque specification per gripper.

DPP-10M – 6 in-lbs [0.68 Nm]
DPP-14M – 8 in-lb [0.90 Nm]
DPP-20M – 13 in-lb [1.47 Nm]
DPP-28M – 15 in-lbs [1.69 Nm]

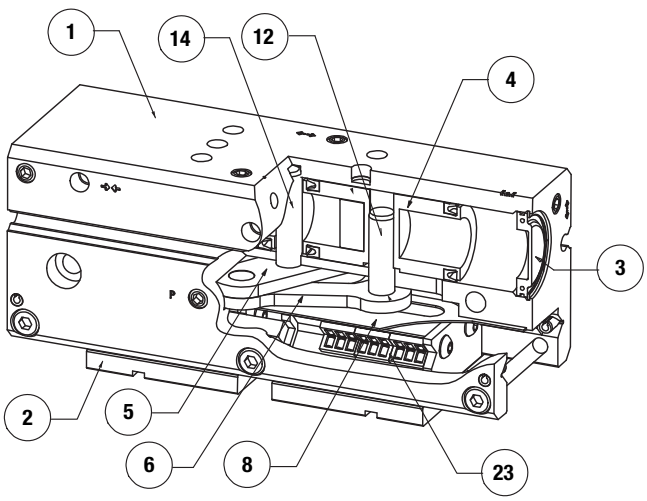
Note: *Torque specifications provided are factory settings. Fine adjustment may be needed based on intent & application.*

Non-Synchronous Procedure:

1) Remove preload screws, press out way locating pins, and slide out ways.
2) Pull out jaws and roller bearing assemblies. (If **-C** spring closed option, remove retaining rings, caps, and springs first.)
3) Remove linkage cover from body.
4) Remove equalizer and links from body.
5) Re-install linkage cover into body.
6) Re-install jaws and roller bearing assemblies into body aligning the drive pins with the hole in the linkage cover and each piston.
7) Re-install ways, press in way locating pins, and re-install preload screws. (If **-C** spring closed option, re-install springs, caps and retaining rings.)

SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon™ Based Grease
GLUE Super Bonder
Third Angle Projection

DPP SERIES ASSEMBLED VIEW



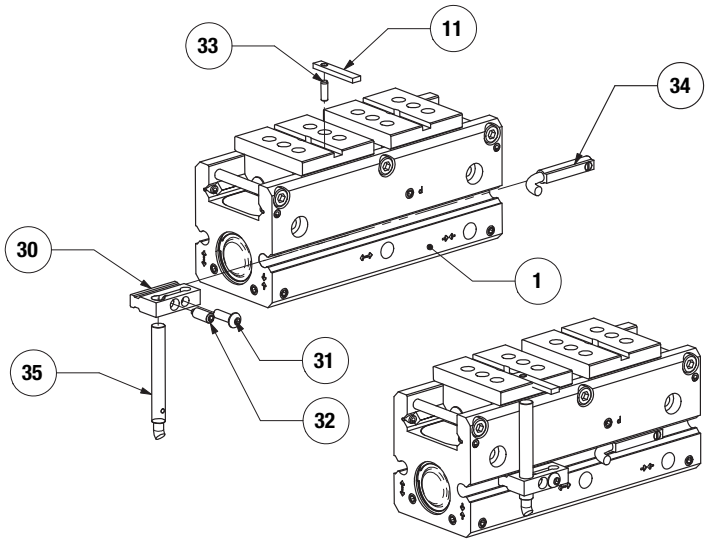
Item	Qty	Name
01	1	Body
02	2	Jaw
03 2		Cap
04	2	Piston
05	1	Equalizer
06	2	Link
08	1	Linkage Cover
12	2	Drive Pin
14	1	Pivot Pin
23*	–	S'assy, Cage & Roller Bearings

Notes:

1) Contact the Robohand Sales Department for a complete spare parts list with order number and prices.

2)* Item #23 quantity and number of different sub-assemblies varies per gripper model. Contact Sales to determine the correct quantity and part numbers needed.

Accessory Installation & Adjustment Instructions



Magneto-Resistive Sensors:

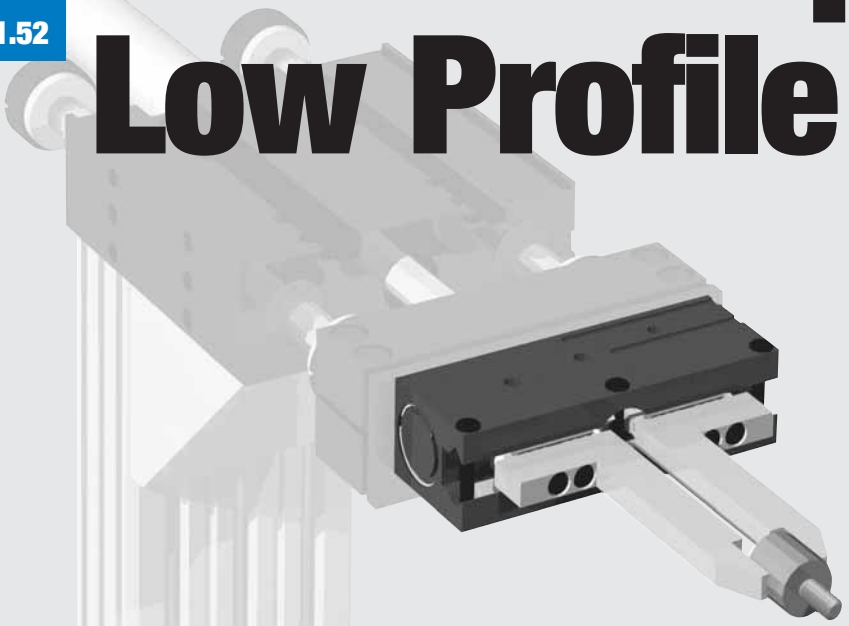
1) Install sensors in profile slots of gripper body as shown.
2) Set sensors with integrated screw.

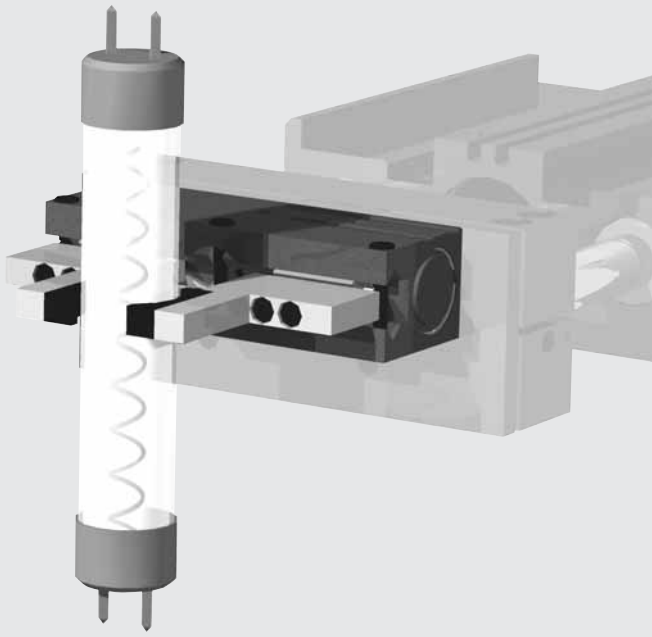
Inductive Sensors:

1) Insert sensor bracket (#30) into slot of bod y.
2) Insert dowel pin (#33) and target (#11) into jaw slot.
3) Insert sensor into bracket and adjust sensor depth so that sensor light indicates on target.
4) Tighten sensor locking screw (#31) to hold sensor depth.
5) Position sensor bracket for desired stroke detection.
6) Tighten sensor bracket with set screw (#32) to lock stroke detection position.

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon™ Based Grease | GLUE Super Bonder | Third Angle Projection

Parallel Grippers - Low Profile Series

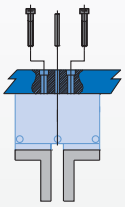


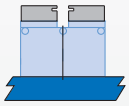


- **Precision applications:** Preloaded "Dual-V" roller bearings eliminate side play for excellent part position repeatability.
- **Repeatable grip force:** Low friction mechanism allows for consistent, repeatable gripping forces. To grip delicate parts, grip force can be easily altered by adjusting air pressure.
- **Longer finger applications:** Rigid design allows for longer gripper finger lengths to be used when compared to other grippers of equal weight & size.
- **Non-synchronous motion:** The unit can be made non-synchronous providing independent jaw motion allowing the gripper to pick or place at a point other than it's center.

Mounting Information:

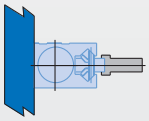
Grippers can be mounted & operated in any orientation

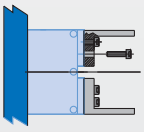




Body mounts with screws and locates with slip fit dowel pins for accuracy

Warning! Protect drive and bearing mechanism from falling debris when mounted upside down





Fingers attach to jaws with screws and locate by keying

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**5-100 psi**	**.3-7 bar**
Cylinder Type	**Dual Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~250° F**	**-30°~120° C**

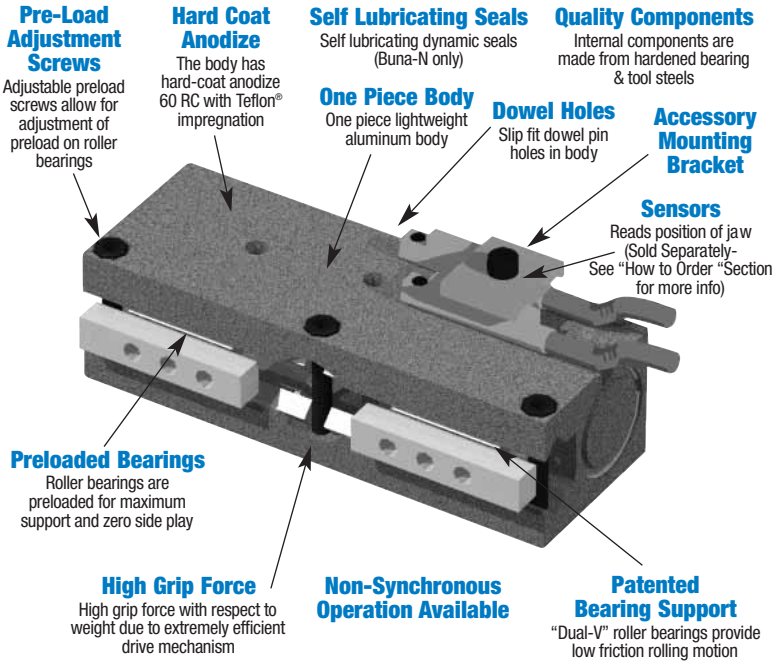
Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

Application Restrictions

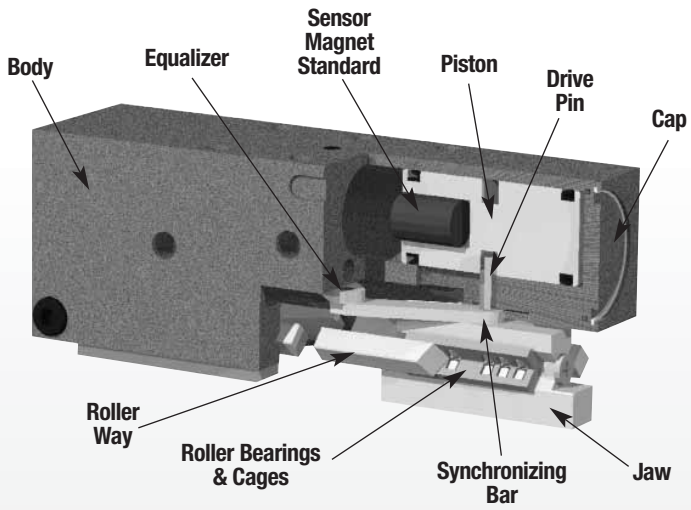
- Dirty or gritty environments
- Machining operations generating chips
- Environments with loose particulate
- Applications where mechanism lubricant could cause contamination

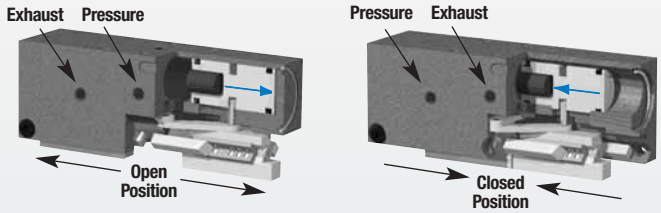
*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features



Operating Principle





- Dual double acting opposed pistons, connected to both a jaw and a synchronizing bar by a drive pin, actuate in opposite directions.
- The synchronizing bars are connected to the equalizer which synchronizes the motion.
- Suitable for internal or external gripping.
- The synchronizing elements can be removed for non-synchronous operation.

U.S. Patent # 5,529,359
Designed and manufactured in the USA

Style-RPL Parallel Gripper

Size -1M

Style:	RPL-1	RPL-1M
Stroke:	0.25 in.	6.4 mm
Grip Force:	26 lbs.	116 N
Weight:	.16 lbs.	.07 Kg

See Page 1.54

Style-RPL Parallel Gripper

Size -2M

Style:	RPL-2	RPL-2M
Stroke:	0.50 in.	12.7 mm
Grip Force:	26 lbs.	116 N
Weight:	.20 lbs.	.09 Kg

See Page 1.55

Style-RPL Parallel Gripper

Size -3M

Style:	RPL-3	RPL-3M
Stroke:	0.75 in.	19.1 mm
Grip Force:	36 lbs.	160 N
Weight:	.32 lbs.	.14 Kg

See Page 1.56

Style-RPL Parallel Gripper

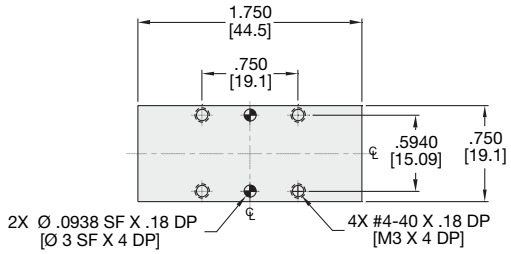
Size -4M

Style:	RPL-4	RPL-4M
Stroke:	1.00 in.	25.4 mm
Grip Force:	36 lbs.	160 N
Weight:	.38 lbs.	.17 Kg

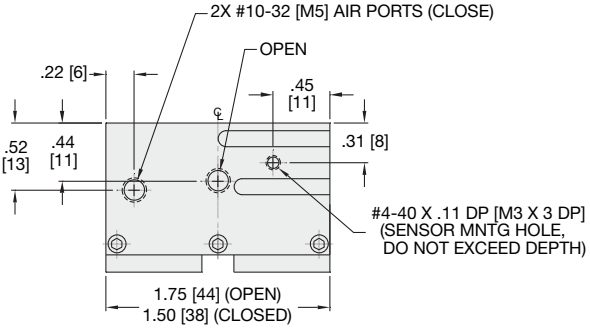
See Page 1.57

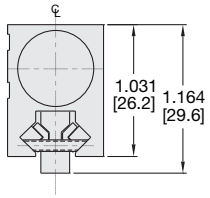
PARALLEL GRIPPER RPL-1M
PRECISION DUAL "V" LOW PROFILE SERIES

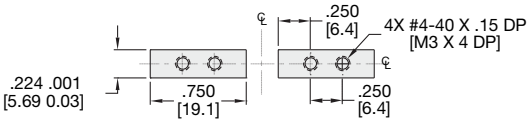
Robohand



Specifications	RPL-1	RPL-1M
Total Rated Grip Force **F** @ 100 psi, 7 bar	26 lbs.	116 N
Stroke	0.25 in.	6.4 mm
Weight	0.16 lbs.	0.07 Kg
Pressure Range	5-100 psi	0.3-7 bar
Cylinder Bore Ø	0.438 in.	11.1 mm
Displacement	0.038 in^3.	0.6 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation	0.10 sec.	0.10 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	





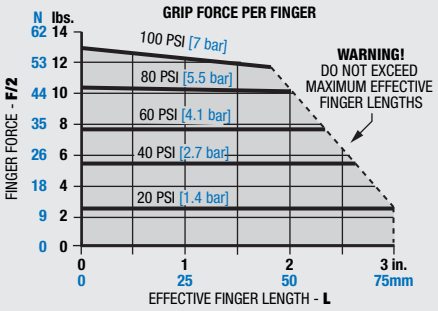


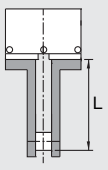
JAW MOUNTING PATTERN
(SHOWN IN OPEN POSITION)

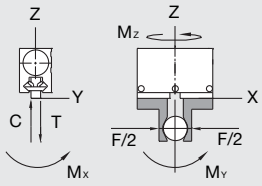
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

Loading Information







Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	50 lbs.	222 N	15 lbs.	67 N
Maximum Compressive **C**	50 lbs.	222 N	15 lbs.	67 N
Maximum Moment M_X	30 in.-lbs.	3.4 Nm	10 in.-lbs.	1.1 Nm
Maximum Moment M_Y	40 in.-lbs.	4.5 Nm	12 in.-lbs.	1.4 Nm
Maximum Moment M_Z	30 in.-lbs.	3.4 Nm	10 in.-lbs.	1.1 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

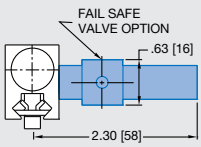
BASIC MODEL — NON-SYNCHRONOUS

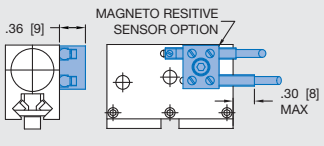
RPL-1 M - NS - V

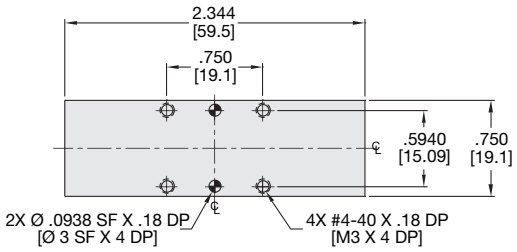
METRIC — VITON® SEALS

SENSOR ACCESSORIES*†	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	OSMK-008	1
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1 or 2
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1 or 2
Quick Disconnect 2 Meter Cable Length*	CABL-010	1 or 2
Quick Disconnect 5 Meter Cable Length*	CABL-013	1 or 2
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	OFSV-001	1
Fail Safe Valve (Metric)	OFSV-004	1
Standard Seal Repair Kit	SLKT-010	1
Viton® Seal Repair Kit	SLKT-010V	1

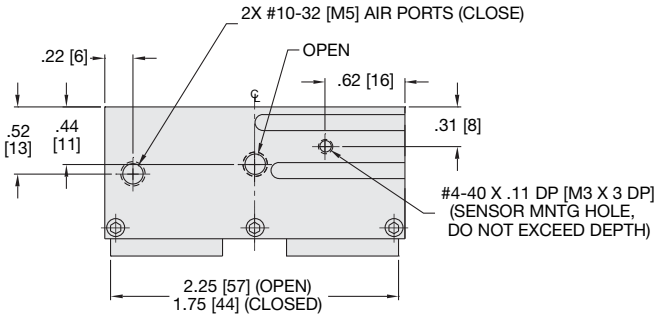
*Sensor and cable sold separately †Piston magnet standard

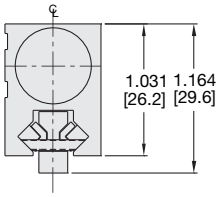


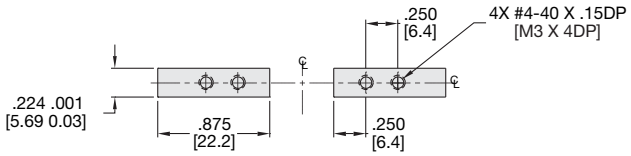




Specifications	RPL-2	RPL-2M
Total Rated Grip Force **F** @ 100 psi, 7 bar	26 lbs.	116 N
Stroke	0.50 in.	12.7 mm
Weight	0.20 lbs.	0.09 Kg
Pressure Range	5-100 psi	0.3-7 bar
Cylinder Bore Ø	0.438 in.	11.1 mm
Displacement	0.075 in^3.	1.2 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation	0.13 sec.	0.13 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	







JAW MOUNTING PATTERN
(SHOWN IN OPEN POSITION)

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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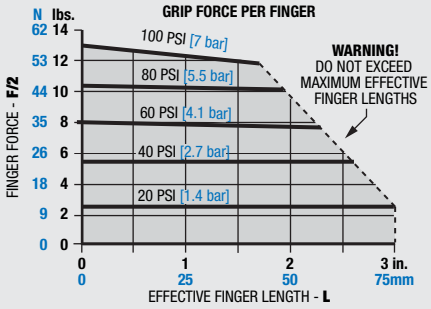
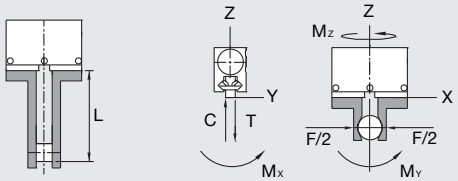




Loading Capacity†	Static		Dynamic	
	Imperial	Metric	Imperial	Metric
Maximum Tensile **T**	65 lbs.	289 N	20 lbs.	89 N
Maximum Compressive **C**	65 lbs.	289 N	20 lbs.	89 N
Maximum Moment M_x	45 in.-lbs.	5.1 Nm	15 in.-lbs.	1.7 Nm
Maximum Moment M_y	60 in.-lbs.	6.8 Nm	20 in.-lbs.	2.3 Nm
Maximum Moment M_z	45 in.-lbs.	5.1 Nm	15 in.-lbs.	1.7 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

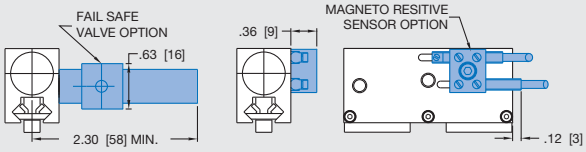
BASIC MODEL — NON-SYNCHRONOUS

RPL-2 M - NS - V

METRIC — VITON® SEALS

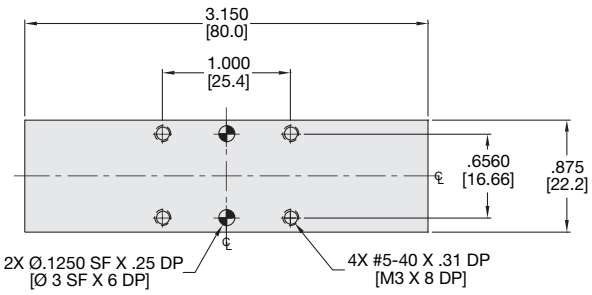
SENSOR ACCESSORIES*†	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	OSMK-008	1
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1 or 2
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1 or 2
Quick Disconnect 2 Meter Cable Length*	CABL-010	1 or 2
Quick Disconnect 5 Meter Cable Length*	CABL-013	1 or 2
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	OFSV-001	1
Fail Safe Valve (Metric)	OFSV-004	1
Standard Seal Repair Kit	SLKT-010	1
Viton® Seal Repair Kit	SLKT-010V	1

*Sensor and cable sold separately †Piston magnet standard

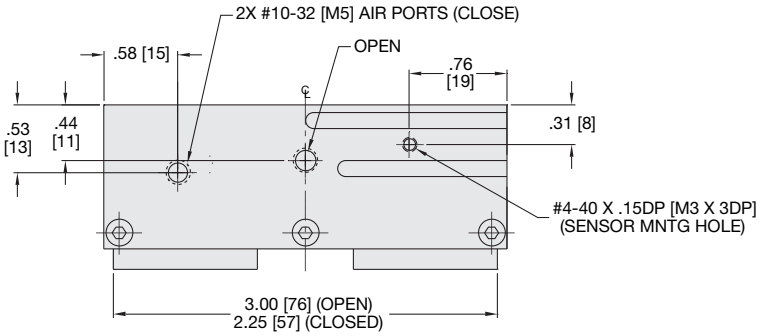


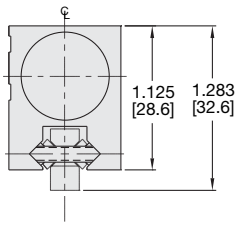
PARALLEL GRIPPER RPL-3M
PRECISION DUAL "V" LOW PROFILE SERIES

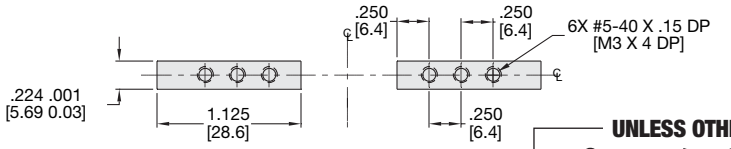
Robohand



Specifications	RPL-3	RPL-3M
Total Rated Grip Force **F** @ 100 psi, 7 bar	36 lbs.	160 N
Stroke	0.75 in.	19.1 mm
Weight	0.32 lbs.	0.15 Kg
Pressure Range	5-100 psi	0.3-7 bar
Cylinder Bore Ø	0.500 in.	12.7 mm
Displacement	0.147 in^3.	2.4 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation	0.14 sec.	0.14 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	







JAW MOUNTING PATTERN
(SHOWN IN OPEN POSITION)

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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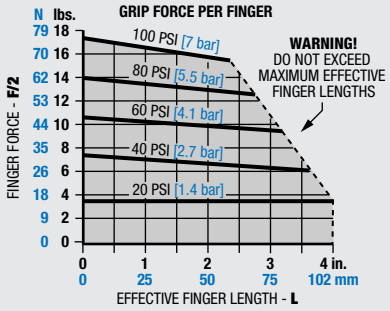
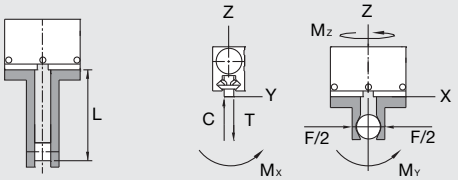




Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	90 lbs.	400 N	30 lbs.	133 N
Maximum Compressive **C**	90 lbs.	400 N	30 lbs.	133 N
Maximum Moment M_x	60 in.-lbs.	6.8 Nm	20 in.-lbs.	2.3 Nm
Maximum Moment M_y	80 in.-lbs.	9.0 Nm	25 in.-lbs.	2.8 Nm
Maximum Moment M_z	60 in.-lbs.	6.8 Nm	20 in.-lbs.	2.3 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

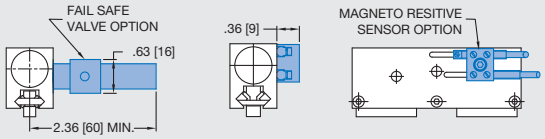
BASIC MODEL — NON-SYNCHRONOUS

RPL-3 M - NS - V

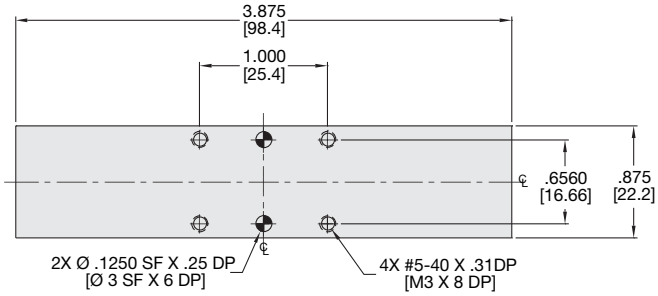
METRIC — VITON® SEALS

SENSOR ACCESSORIES*†	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	OSMK-008	1
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1 or 2
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1 or 2
Quick Disconnect 2 Meter Cable Length*	CABL-010	1 or 2
Quick Disconnect 5 Meter Cable Length*	CABL-013	1 or 2
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	OFSV-001	1
Fail Safe Valve (Metric)	OFSV-004	1
Standard Seal Repair Kit	SLKT-012	1
Viton® Seal Repair Kit	SLKT-012V	1

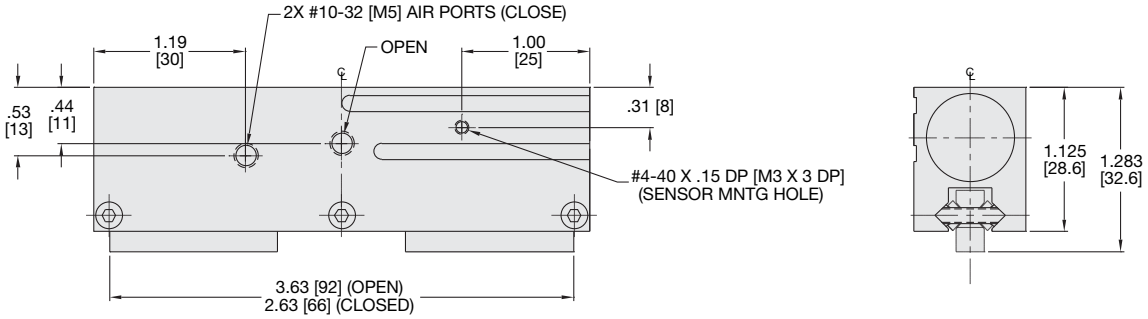
*Sensor and cable sold separately †Piston magnet standard

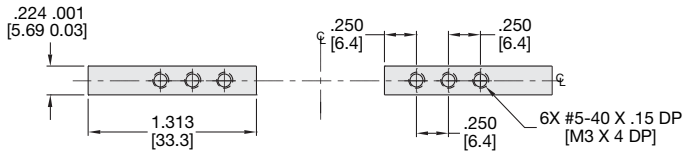


PARALLEL GRIPPER RPL-4M
PRECISION DUAL "V" LOW PROFILE SERIES



Specifications	RPL-4	RPL-4M
Total Rated Grip Force **F** @ 100 psi, 7 bar	36 lbs.	160 N
Stroke	1.00 in.	25.4 mm
Weight	0.38 lbs.	0.17 Kg
Pressure Range	5-100 psi	0.3-7 bar
Cylinder Bore Ø	0.500 in.	12.7 mm
Displacement	0.196 in^3	3.2 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation	0.19 sec.	0.19 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	





JAW MOUNTING PATTERN
(SHOWN IN OPEN POSITION)

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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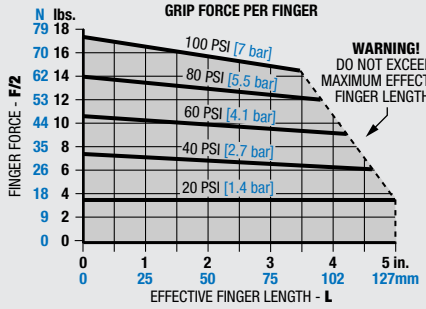
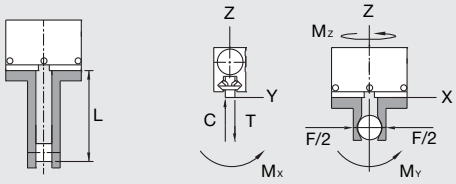




Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	120 lbs.	534 N	40 lbs.	178 N
Maximum Compressive **C**	120 lbs.	534 N	40 lbs.	178 N
Maximum Moment **Mx**	75 in.-lbs.	8.5 Nm	25 in.-lbs.	2.8 Nm
Maximum Moment **My**	100 in.-lbs.	11.3 Nm	35 in.-lbs.	4.0 Nm
Maximum Moment **Mz**	75 in.-lbs.	8.5 Nm	25 in.-lbs.	2.8 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

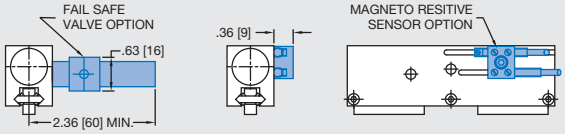
BASIC MODEL | NON-SYNCHRONOUS

RPL-4 M - NS - V

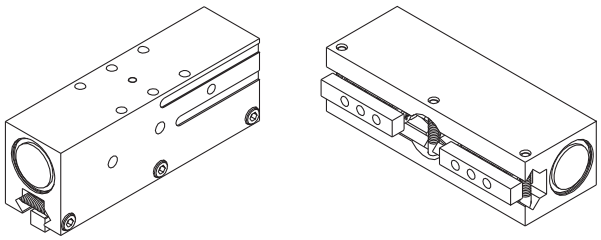
METRIC | VITON® SEALS

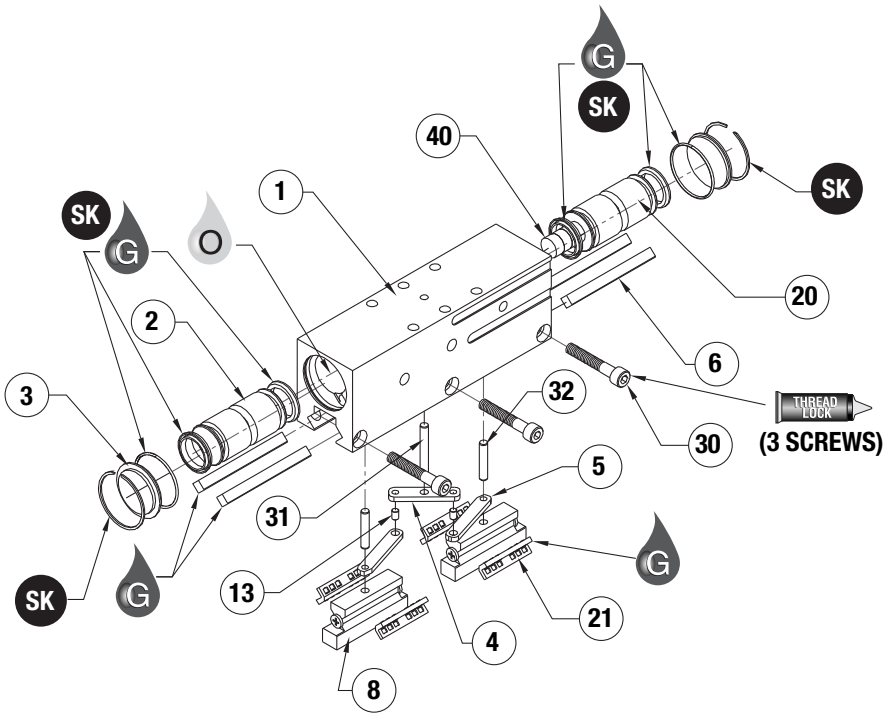
SENSOR ACCESSORIES*†	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	**OSMK-008**	**1**
NPN Magneto Resistive Sensor with Quick Disconnect*	**OHSN-017**	**1 or 2**
PNP Magneto Resistive Sensor with Quick Disconnect*	**OHSP-017**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	**OFSV-001**	**1**
Fail Safe Valve (Metric)	**OFSV-004**	**1**
Standard Seal Repair Kit	**SLKT-012**	**1**
Viton® Seal Repair Kit	**SLKT-012V**	**1**

*Sensor and cable sold separately †Piston magnet standard



RPL Series Exploded View





Item	Qty	Name
01	1	Body
02	1	Piston
03	2	Cap
04	1	Equalizer
05	2	Link
06	4	Way
08	2	Jaw
13	2	Pin
20	1	Piston W/Magnet Slot
21	4	S'assy,Cage & Rollers
30	3	SHCS
31	1	Dowel Pin
32	2	Dowel Pin
40	2	Magnet

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedure

1) Lubricate and install seals.
2) Press dowel pin into center of body.
3) Place links and equalizers into body.
4) Press dowel pins into jaws.
5) Place jaws through links and into pistons.
6) Install cages on jaws.
7) Place ways behind cages with flat facing out and install screws.
8) Adjust preload.

Preload Adjustment Procedure

1) Tighten center screw (#30) so that fingers bind slightly.
2) Tighten outer screws in the same fashion.
3) Cycle the gripper.
4) Re-adjust screws so that when you push the cage, the finger moves freely. (the finger movement should not feel gritty.)

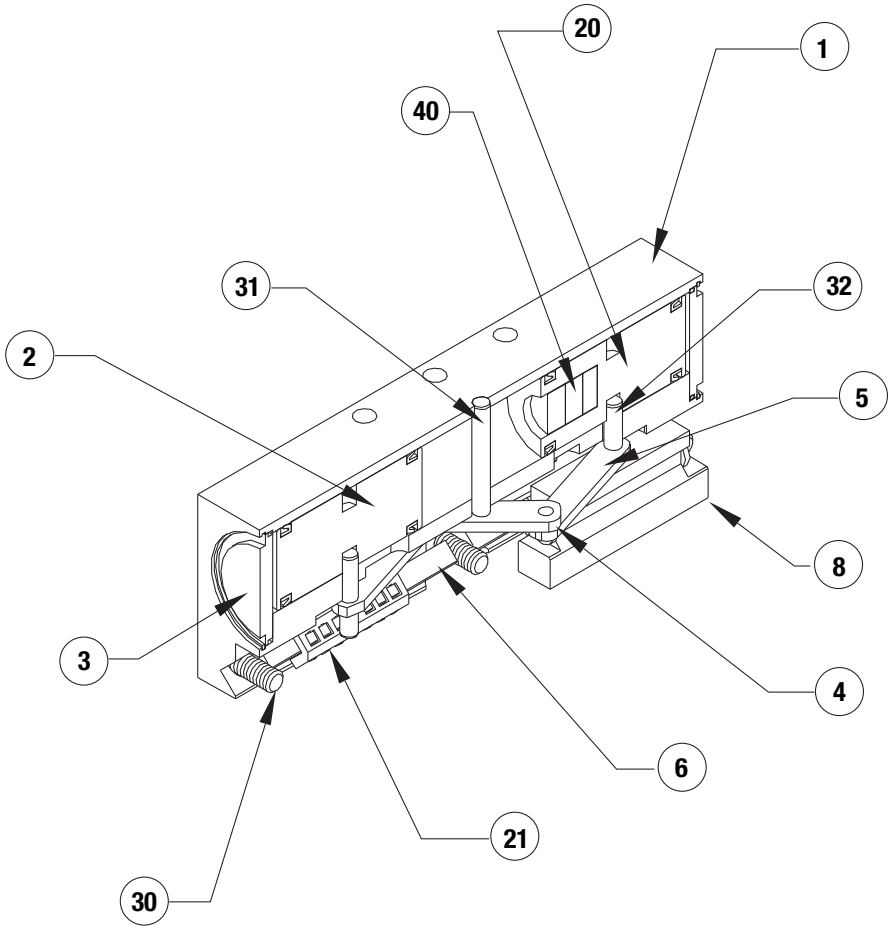
Non-Synchronous Procedure

1) Remove preload screws (#30) and ways.
2) Remove cages, jaws and dowel pins.
3) Remove equalizer, links, and roller bearings.
4) Re-assemble jaws and dowel pins into pistons.
5) Re-install cages on jaws.
6) Place ways behind cages with flat facing out and install preload screws.
7) Adjust preload.

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon™ Based Grease
GLUE Super Bonder
Third Angle Projection

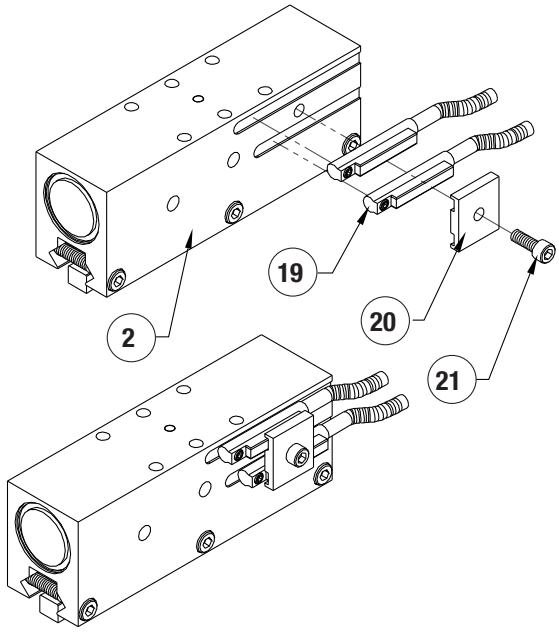
RPL Series Assembled View



Item	Qty	Name
01	1	Body
02	1	Piston
03	2	Cap
04	1	Equalizer
05	2	Link
06	4	Way
08	2	Jaw
13	2	Bearing,Roller
20	1	Piston W/Magnet Slot
21	4	S'assy,Cage & Rollers
30	3	SHCS
31	1	Dowel Pin
32	2	Dowel Pin
40	2	Magnet

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Accessory Installation & Adjustment Instructions

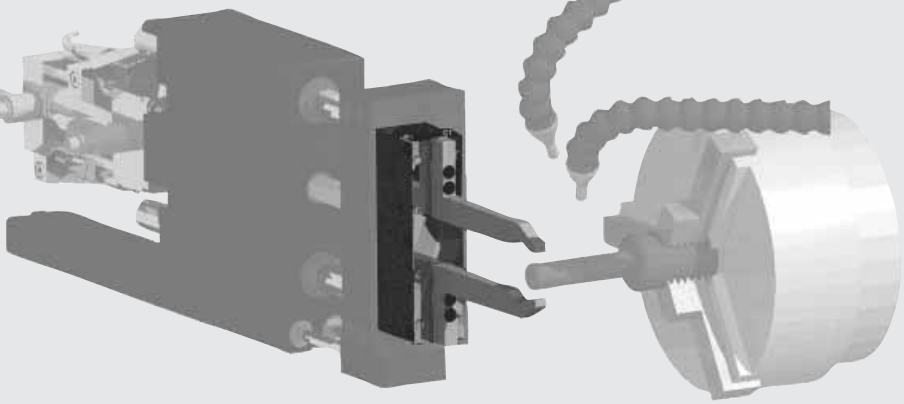


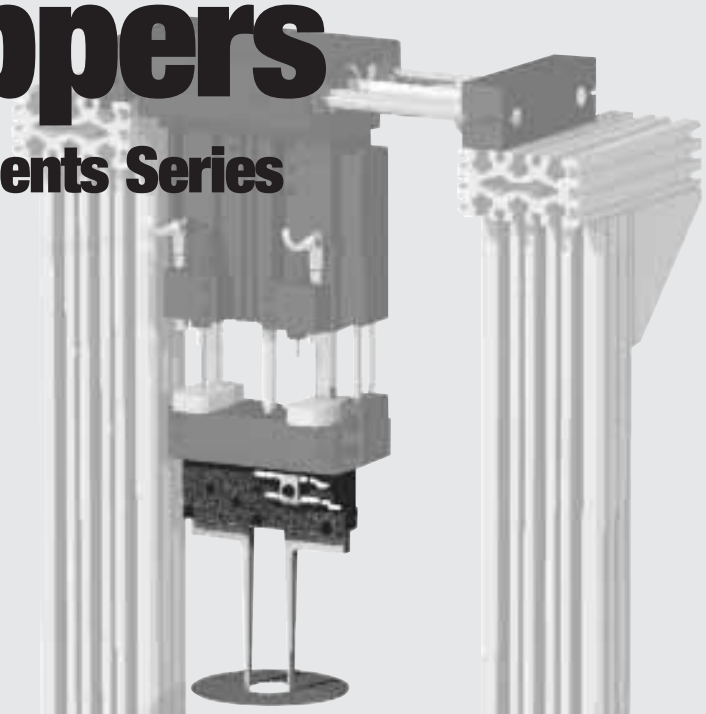
Installation
1. Install sensors as shown.
2. Adjust for desired end of stroke detection.

SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon™ Based Grease
GLUE Super Bonder
Third Angle Projection

Parallel Grippers

Clean Room / Harsh Environments Series

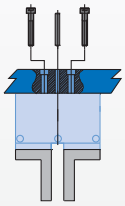




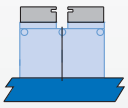
- **Precision applications:** Preloaded "Dual-V" roller bearings eliminate side play for excellent part position repeatability.
- **Clean Room rated:** A corrosion resistant shield protects the drive and bearing mechanism. All internal components are lubricated with clean room grade lubricant. The scavenge port can be used with vacuum pressure to prevent escape of particulate generated by the internal mechanism.
- **Harsh environments:** All moving components are located within the stainless steel shield. The body has a purge port which can expel contaminates from the mechanism using low air pressure.
- **Repeatable grip force:** Low friction mechanism allows for consistent, repeatable gripping forces. To grip delicate parts, grip force can be easily altered by adjusting air pressure.
- **Longer finger applications:** Rigid design allows for longer gripper finger lengths to be used when compared to other grippers of equal weight.
- **Non-synchronous motion:** The unit can made non-synchronous providing independent jaw motion allowing the gripper to pick or place at a point other than it's center.

Mounting Information:

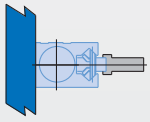
Grippers can be mounted & operated in any orientation

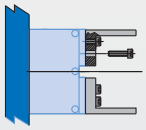


Body mounts with screws and locates with slip fit dowel pins for accuracy



Shields provide protection from falling debris when mounted upside down





Fingers attach to jaws with screws and locate by keying

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**5-100 psi**	**.3-7 bar**
Cylinder Type	**Dual Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

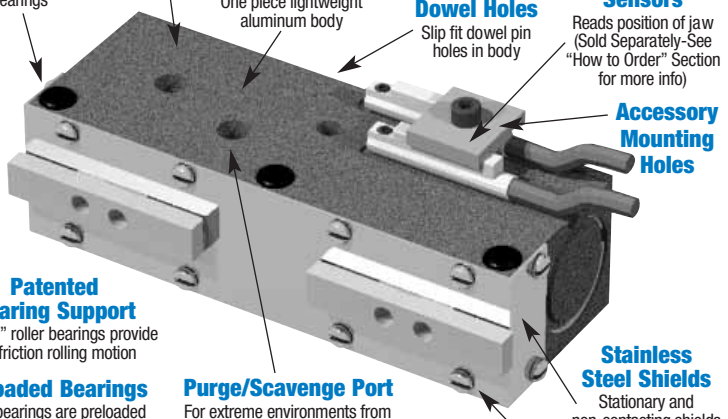
Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~250° F**	**-30°~120° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features



Pre-Load Adjustment Screws
Adjustable preload screws allow for adjustment of preload on roller bearings

Hard Coat Anodize
The body has hard-coat anodize 60 RC with Teflon® impregnation

Clean-Room Lubrication
Units are lubricated with a clean-room grade grease

Self Lubricating Seals
Self lubricating dynamic seals (Buna-N only)

Quality Components
Internal components are made from hardened bearing & tool steels
External components are made from corrosion resistant materials for resistance to de-ionized water or for use in FDA & medical parts handling applications

One Piece Body
One piece lightweight aluminum body

Dowel Holes
Slip fit dowel pin holes in body

Sensors
Reads position of jaw (Sold Separately-See "How to Order" Section for more info)

Accessory Mounting Holes

Patented Bearing Support
Dual "V" roller bearings provide low friction rolling motion

Preloaded Bearings
Roller bearings are preloaded for maximum support and zero side play

Purge/Scavenge Port
For extreme environments from dirty & gritty to clean-room Class 10 or better

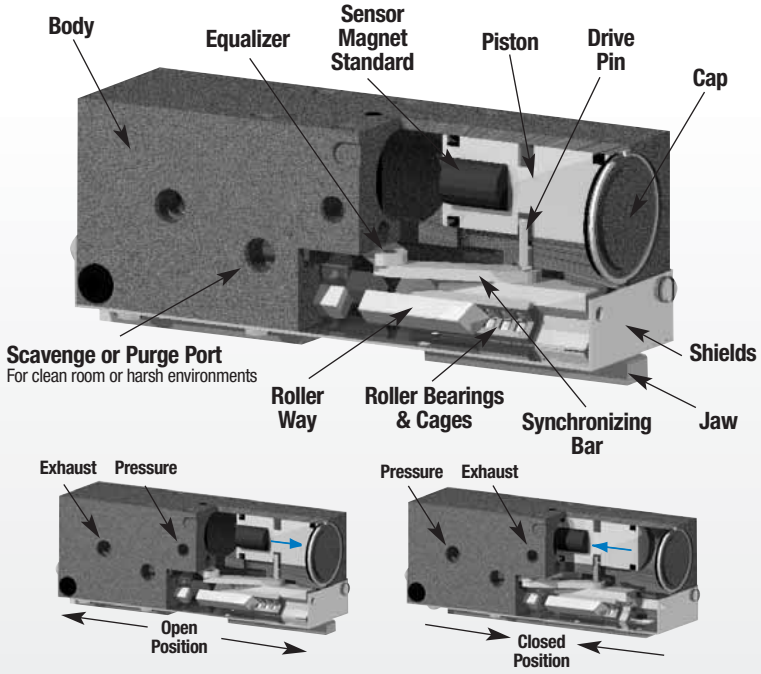
Stainless Steel Shields
Stationary and non-contacting shields eliminate the possibility of particle generation.

Non-Synchronous Operation Available

High Grip Force
High grip force with respect to weight due to extremely efficient drive mechanism

Stainless Steel Screws
Provides protection against corrosion

Operating Principle



- Dual double acting opposed pistons, connected to both a jaw and a synchronizing bar by a drive pin, actuate in opposite directions.
- The synchronizing bars are connected to the equalizer which synchronizes the motion.
- The purge/scavenge port can be used to expel or retain contaminates using pressure or vacuum respectively.
- Suitable for internal or external gripping.
- The synchronizing elements can be removed for non-synchronous operation.

U.S. Patent # 5,529,359 Designed and manufactured in the USA

Style-RPLC Parallel Gripper

Size -1M

	RPLC-1	RPLC-1M
Stroke:	0.25 in.	6.4 mm
Grip Force:	26 lb	116 N
Weight:	.16 lb	.07 Kg

See Page 1.62

Style-RPLC Parallel Gripper

Size -2M

	RPLC-2	RPLC-2M
Stroke:	0.50 in.	12.7 mm
Grip Force:	26 lb	116 N
Weight:	.20 lb	.09 Kg

See Page 1.63

Style-RPLC Parallel Gripper

Size -3M

	RPLC-3	RPLC-3M
Stroke:	0.75 in.	19.1 mm
Grip Force:	36 lb	160 N
Weight:	.32 lb	.15 Kg

See Page 1.64

Style-RPLC Parallel Gripper

Size -4M

	RPLC-4	RPLC-4M
Stroke:	1.00 in.	25.4 mm
Grip Force:	36 lb	160 N
Weight:	.38 lb	.17 Kg

See Page 1.65

PARALLEL GRIPPER RPLC-1M
PRECISION DUAL "V" CLEAN ROOM SERIES

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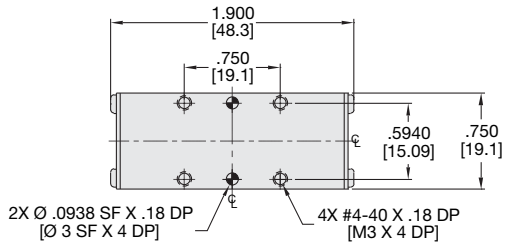
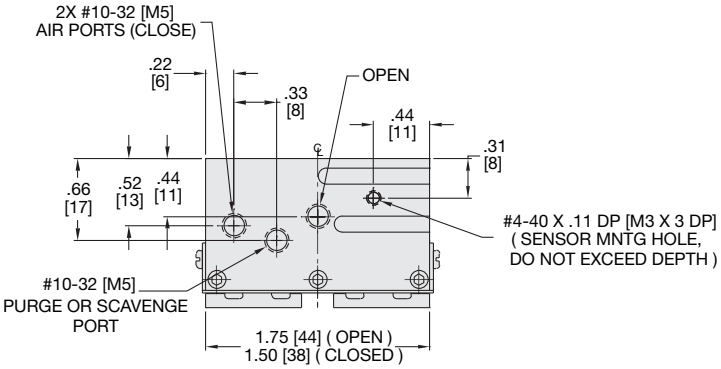
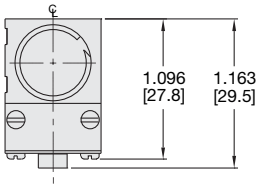
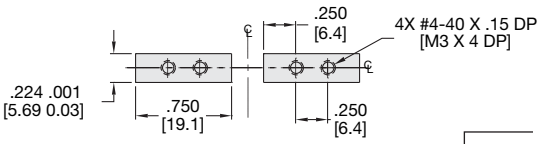


Specifications	RPLC-1	RPLC-1M
Total Rated Grip Force **F** @ 100 psi, 7 bar	26 lb	116 N
Stroke	0.25 in.	6.4 mm
Weight	0.16 lb	0.07 Kg
Pressure Range	5-100 psi	0.3-7 bar
Cylinder Bore Ø	0.438 in.	11.1 mm
Displacement	0.038 in^3.	0.6 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation	0.10 sec.	0.10 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	







UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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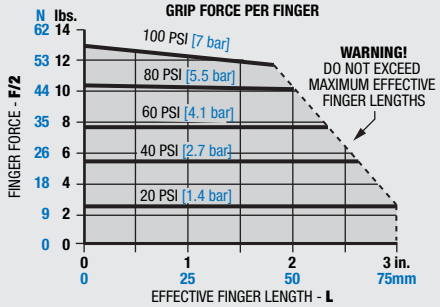
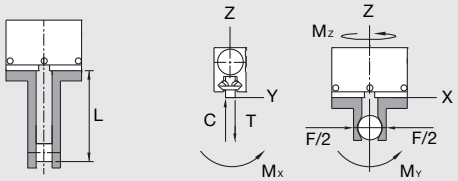




Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	50 lbs.	222 N	15 lbs.	67 N
Maximum Compressive **C**	50 lbs.	222 N	15 lbs.	67 N
Maximum Moment **Mx**	30 in.- lbs.	3.4 Nm	10 in.- lbs.	1.1 Nm
Maximum Moment **My**	40 in.- lbs.	4.5 Nm	12 in.- lbs.	1.4 Nm
Maximum Moment **Mz**	30 in.- lbs.	3.4 Nm	10 in.- lbs.	1.1 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

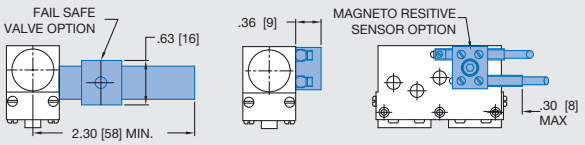
BASIC MODEL — NON-SYNCHRONOUS

RPLC-1 M - NS - V

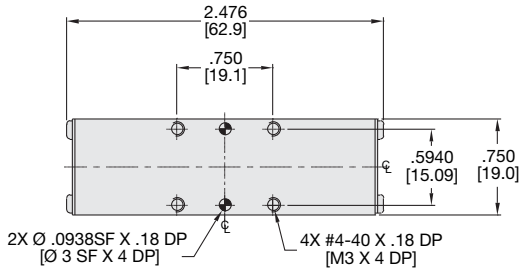
METRIC — VITON® SEALS

SENSOR ACCESSORIES*†	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	OSMK-008	1
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1 or 2
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1 or 2
Quick Disconnect 2 Meter Cable Length*	CABL-010	1 or 2
Quick Disconnect 5 Meter Cable Length*	CABL-013	1 or 2
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	OFSV-001	1
Fail Safe Valve (Metric)	OFSV-004	1
Standard Seal Repair Kit	SLKT-010	1
Viton® Seal Repair Kit	SLKT-010V	1

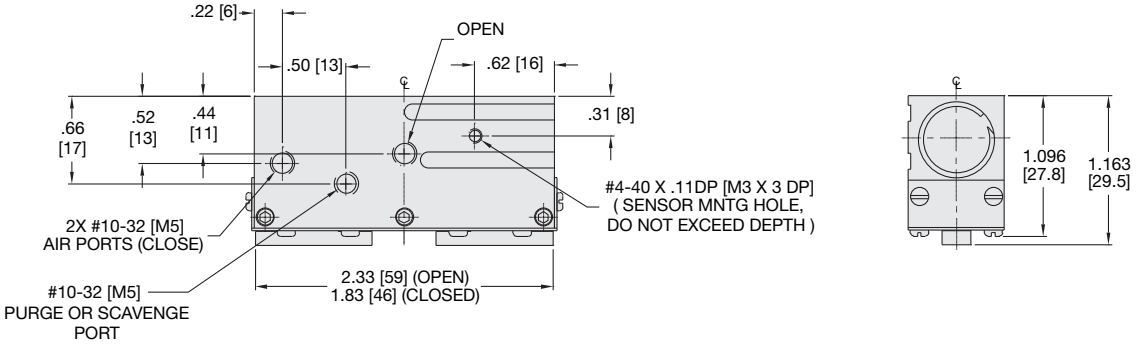
*Sensor and cable sold separately †Piston magnet standard

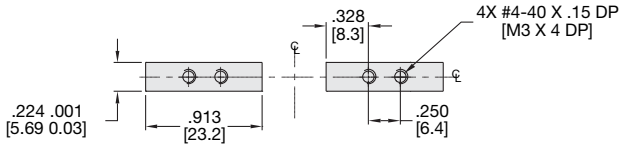


PARALLEL GRIPPER RPLC-2M
PRECISION DUAL "V" CLEAN ROOM SERIES



Specifications	RPLC-2	RPLC-2M
Total Rated Grip Force **F** @ 100 psi, 7 bar	26 lb	116 N
Stroke	0.50 in.	12.7 mm
Weight	0.20 lb	0.09 Kg
Pressure Range	5-100 psi	0.3-7 bar
Cylinder Bore Ø	0.438 in.	11.1 mm
Displacement	0.075 in³.	1.2 cm³
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation	0.13 sec.	0.13 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	





JAW MOUNTING PATTERN
(SHOWN IN OPEN POSITION)

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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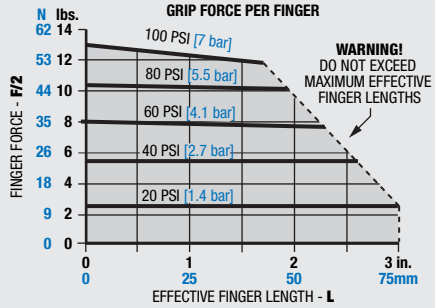
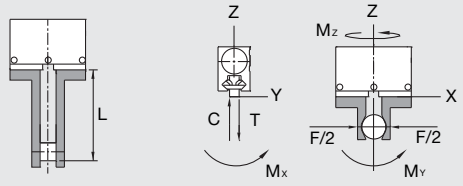




Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	65 lbs.	289 N	20 lb	89 N
Maximum Compressive **C**	65 lbs.	289 N	20 lb	89 N
Maximum Moment **Mx**	45 in.-lbs.	5.1 Nm	15 in.-lbs.	1.7 Nm
Maximum Moment **My**	60 in.-lbs.	6.8 Nm	20 in.-lbs.	2.3 Nm
Maximum Moment **Mz**	45 in.-lbs.	5.1 Nm	15 in.-lbs.	1.7 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

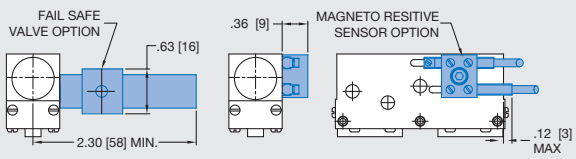
BASIC MODEL | NON-SYNCHRONOUS

RPLC-2 M - NS - V

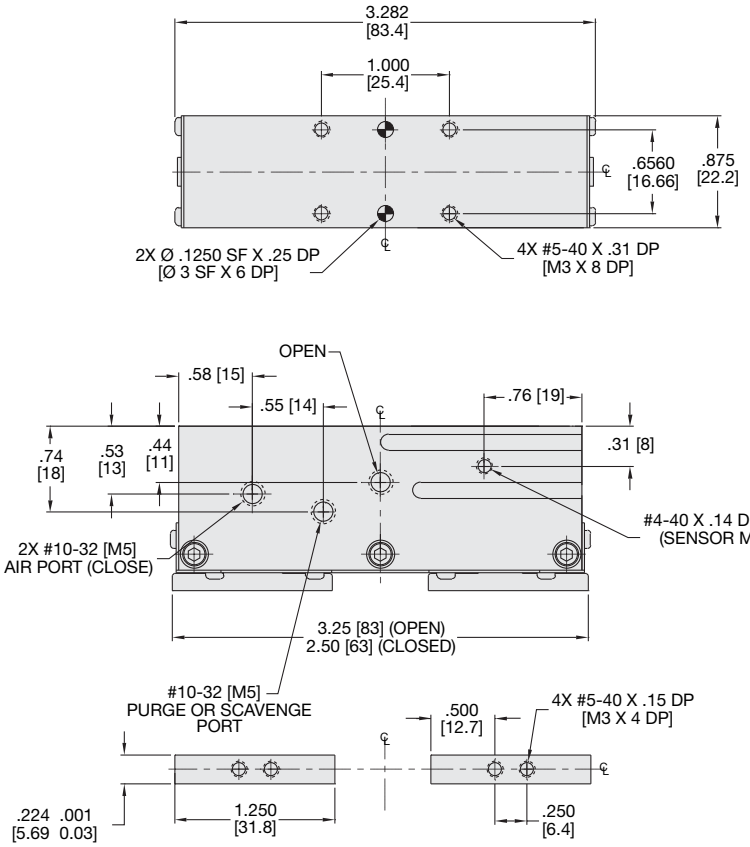
METRIC | VITON® SEALS

SENSOR ACCESSORIES*†	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	OSMK-008	1
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1 or 2
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1 or 2
Quick Disconnect 2 Meter Cable Length*	CABL-010	1 or 2
Quick Disconnect 5 Meter Cable Length*	CABL-013	1 or 2
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	OFSV-001	1
Fail Safe Valve (Metric)	OFSV-004	1
Standard Seal Repair Kit	SLKT-010	1
Viton® Seal Repair Kit	SLKT-010V	1

*Sensor and cable sold separately †Piston magnet standard



PARALLEL GRIPPER RPLC-3M
PRECISION DUAL "V" CLEAN ROOM SERIES



JAW MOUNTING PATTERN
(SHOWN IN OPEN POSITION)

Specifications	RPLC-3	RPLC-3M
Total Rated Grip Force **F** @ 100 psi, 7 bar	36 lb	160 N
Stroke	0.75 in.	19.1 mm
Weight	0.32 lb	0.15 Kg
Pressure Range	5-100 psi	0.3-7 bar
Cylinder Bore Ø	0.500 in.	12.7 mm
Displacement	0.147 in^3.	2.4 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation	0.14 sec.	0.14 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

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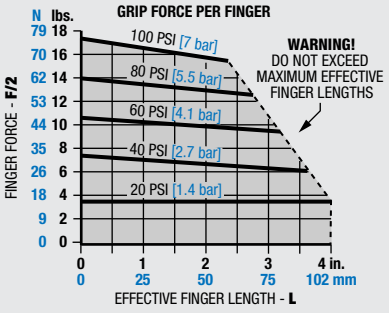
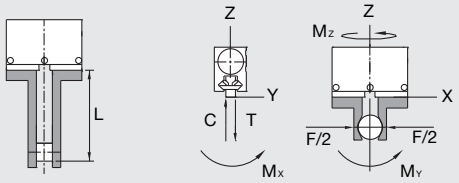




Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	90 lbs.	400 N	30 lbs.	133 N
Maximum Compressive **C**	90 lbs.	400 N	30 lbs.	133 N
Maximum Moment **Mx**	60 in.-lbs.	6.8 Nm	20 in.-lbs.	2.3 Nm
Maximum Moment **My**	80 in.-lbs.	9.0 Nm	25 in.-lbs.	2.8 Nm
Maximum Moment **Mz**	60 in.-lbs.	6.8 Nm	20 in.-lbs.	2.3 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

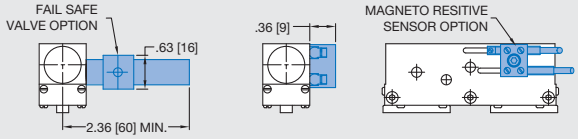
BASIC MODEL — NON-SYNCHRONOUS

RPLC-3 M - NS - V

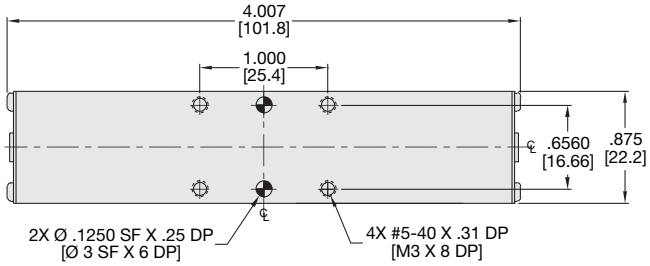
METRIC — VITON® SEALS

SENSOR ACCESSORIES*†	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	OSMK-008	1
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1 or 2
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1 or 2
Quick Disconnect 2 Meter Cable Length*	CABL-010	1 or 2
Quick Disconnect 5 Meter Cable Length*	CABL-013	1 or 2
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	OFSV-001	1
Fail Safe Valve (Metric)	OFSV-004	1
Standard Seal Repair Kit	SLKT-012	1
Viton® Seal Repair Kit	SLKT-012V	1

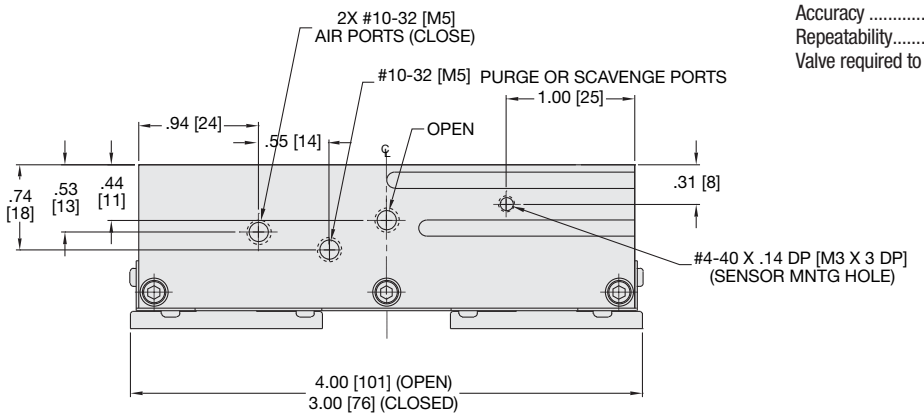
*Sensor and cable sold separately †Piston magnet standard

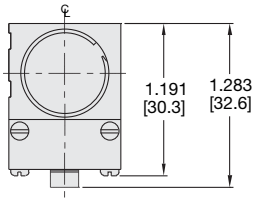


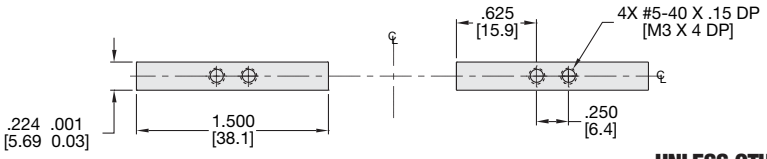
PARALLEL GRIPPER RPLC-4M
PRECISION DUAL "V" CLEAN ROOM SERIES



Specifications	RPLC-4	RPLC-4M
Total Rated Grip Force **F** @ 100 psi, 7 bar	36 lb	160 N
Stroke	1.00 in.	25.4 mm
Weight	0.38 lb	0.17 Kg
Pressure Range	5-100 psi	0.3-7 bar
Cylinder Bore Ø	0.500 in.	12.7 mm
Displacement	0.196 in^3	3.2 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation	0.19 sec.	0.19 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	







JAW MOUNTING PATTERN
(SHOWN IN OPEN POSITION)

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

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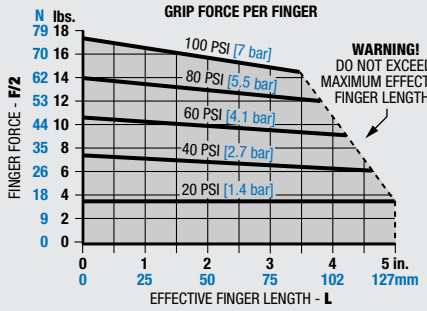
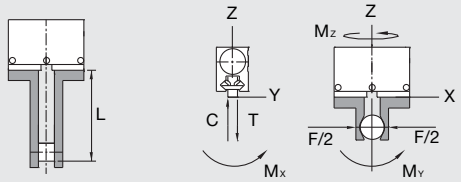




Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	120 lbs.	534 N	40 lbs.	178 N
Maximum Compressive **C**	120 lbs.	534 N	40 lbs.	178 N
Maximum Moment **Mx**	75 in.-lbs.	8.5 Nm	25 in.-lbs.	2.8 Nm
Maximum Moment **My**	100 in.-lbs.	11.3 Nm	35 in.-lbs.	4.0 Nm
Maximum Moment **Mz**	75 in.-lbs.	8.5 Nm	25 in.-lbs.	2.8 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

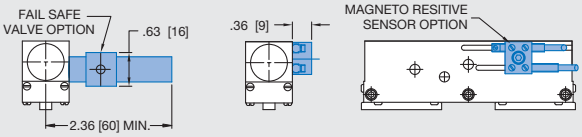
BASIC MODEL — NON-SYNCHRONOUS

RPLC-4 M - NS - V

METRIC — VITON® SEALS

SENSOR ACCESSORIES*†	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	**OSMK-008**	**1**
NPN Magneto Resistive Sensor with Quick Disconnect*	**OHSN-017**	**1 or 2**
PNP Magneto Resistive Sensor with Quick Disconnect*	**OHSP-017**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	**OFSV-001**	**1**
Fail Safe Valve (Metric)	**OFSV-004**	**1**
Standard Seal Repair Kit	**SLKT-012**	**1**
Viton® Seal Repair Kit	**SLKT-012V**	**1**

*Sensor and cable sold separately †Piston magnet standard



RPLC Series Exploded View

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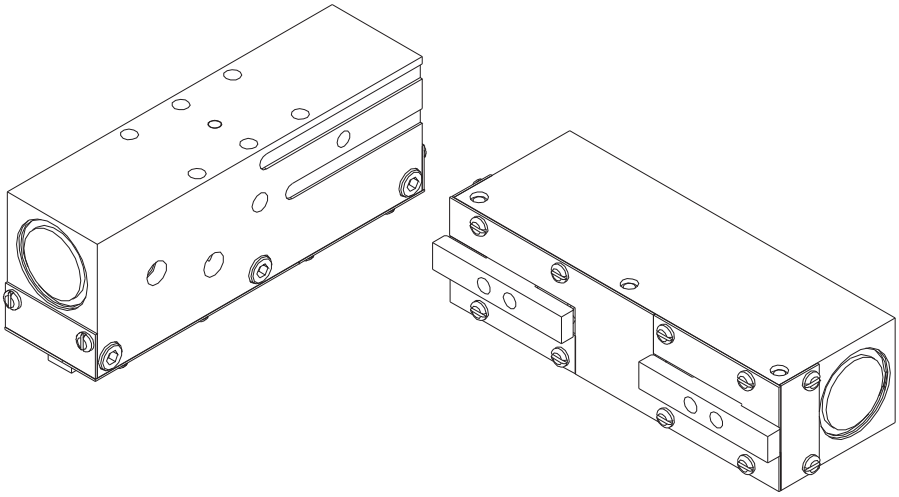
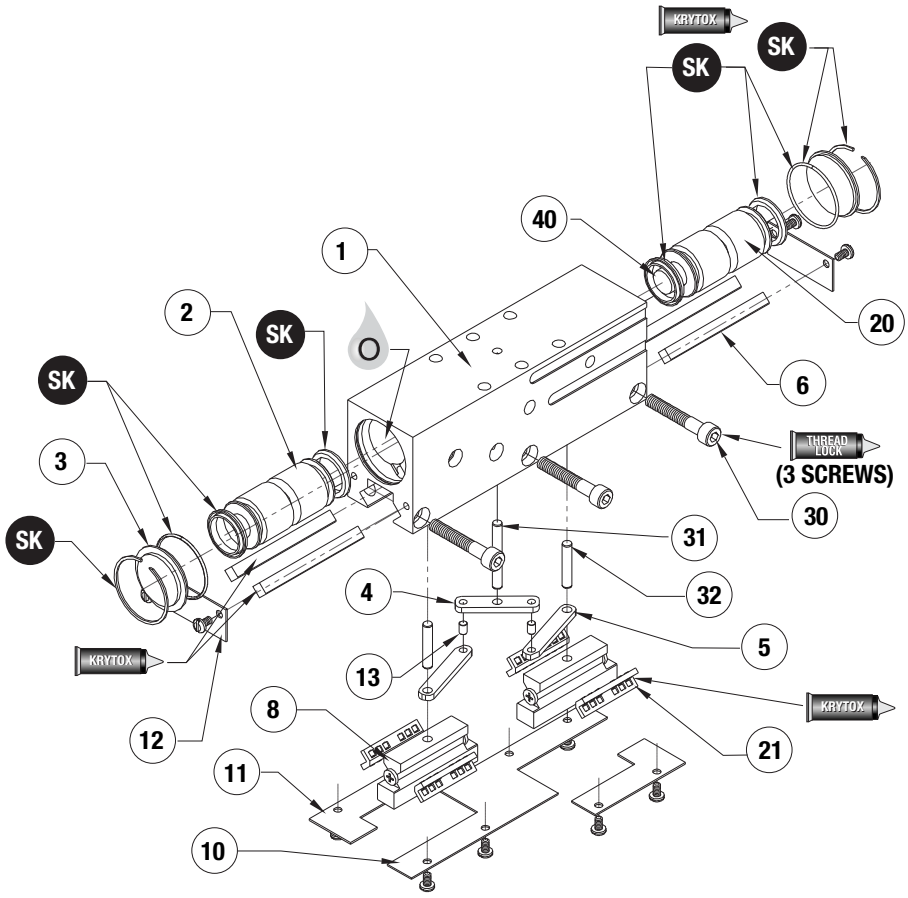




Item	Qty	Name
01	1	Body
02	1	Piston
03	2	Cap
04	1	Equalizer
05	2	Link
06	4	Way
08	2	Jaw
10	1	Cover, Bottom
11	2	Cover, Bottom, Corners
12	2	Cover, End
13	2	Bearing, Roller
20	1	Piston W/Magnet Slot
21	4	S'assy, Cage & Rollers
30	3	SHCS
31	1	Dowel Pin
32	2	Dowel Pin
40	2	Magnet

Note: contact the robohand sales department for a complete spare parts list with order numbers and prices.

Assembly procedure

1) Lubricate and install seals.
2) Glue magnets into one piston, install pistons, caps and retaining rings.
3) Press dowel pin into center of body.
4) Place links and equalizers into body.
5) Press dowel pins into jaws.
6) Place jaws through links and into pistons.
7) Install cages on jaws.
8) Place ways behind cages with flat facing out and install screws.
9) Adjust preload.
10) Install bottom cover, bottom cover corners and end covers.

Preload adjustment procedure

1) Tighten center screw (#30) so that fingers preload adjustment procedure
2) Tighten outer screws in the same fashion. Bind slightly.
3) Cycle the gripper.
4) Re-adjust screws so that when you push the cage, the finger moves freely. (the finger movement should not feel gritty.)

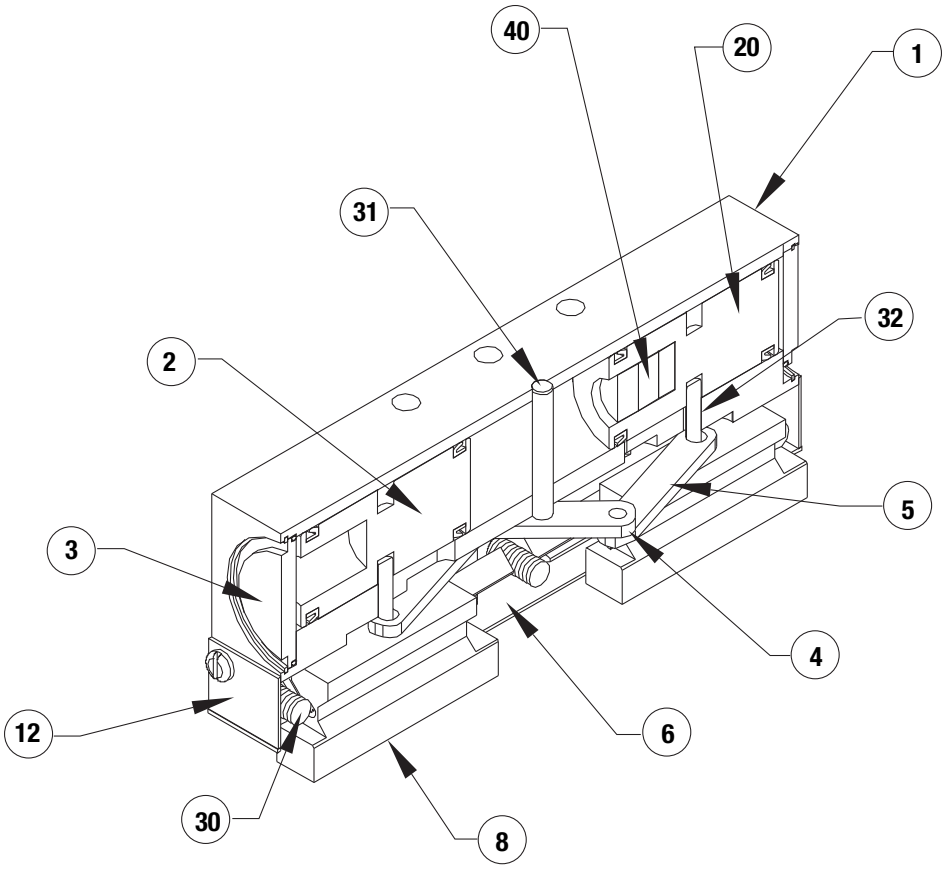
Non-synchronous procedure

1) Remove end covers, bottom cover corners, and bottom cover.
2) Remove preload screws (#30) and ways.
3) Remove cages, jaws and dowel pins.
4) Remove equalizer, links, and roller bearings.
5) Re-assemble jaws and dowel pins into pistons.
6) Re-install cages on jaws.
7) Place ways behind cages with flat facing out and
8) Adjust preload. Install preload screws.
9) Re-attach bottom cover, bottom cover corners and end covers. Gripper is now non-synchronous.

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection

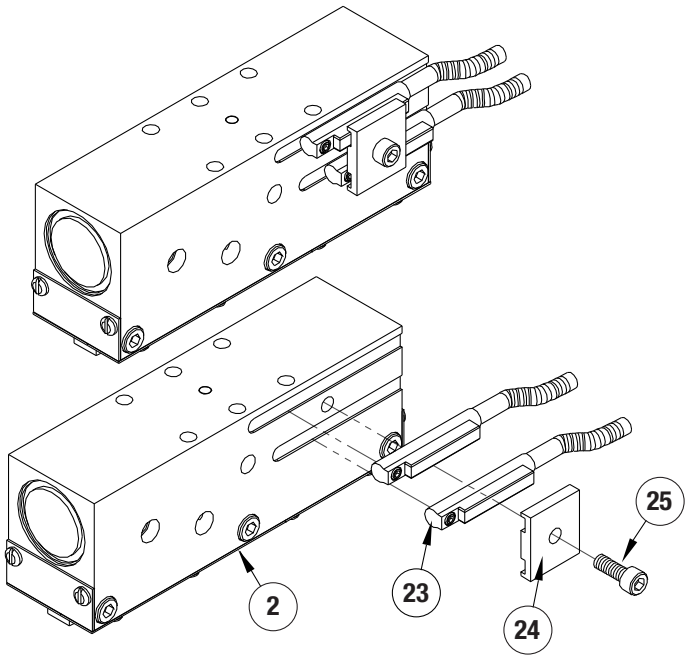
RPLC Series Assembled View



Item	Qty	Name
01	1	Body
02	1	Piston
03	2	Cap
04	1	Equalizer
05	2	Link
06	4	Way
08	2	Jaw
10	1	Cover, Bottom
11	2	Cover, Bottom, Corners
12	2	Cover, End
13	2	Bearing, Roller
20	1	Piston W/Magnet Slot
21	4	S'assy, Cage & Rollers
30	3	SHCS
31	1	Dowel Pin
32	2	Dowel Pin
40	2	Magnet

Note: contact the robohand sales department for a complete spare parts list with order numbers and prices.

Accessory Installation & Adjustment Instructions



Installation
1) Install sensors as shown.
2) Adjust for desired end of stroke detection.

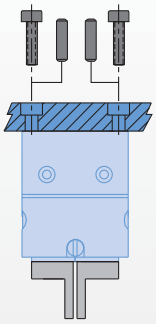
SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
Lightweight Machine Oil
Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection

Parallel Grippers - Miniature Series

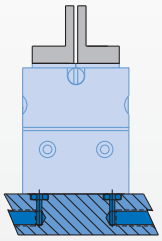
- **Precision applications:** Preloaded dual-"V" roller bearings eliminate side play for excellent part position repeatability.
- **Miniature size:** Compact design allows for gripping small parts in small spaces.
- **Top manifold:** Grippers can be manifolded through the top mounting surface. This eliminates the need for air fittings and allows grippers to be mounted in close array.
- **Repeatable grip force:** Low friction mechanism allows for consistent, repeatable gripping forces. To grip delicate parts, grip force can be easily altered by adjusting air pressure.

Mounting Information:

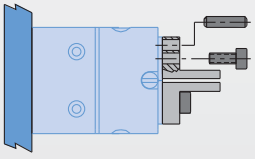
Grippers can be mounted & operated in any orientation



Body mounts with screws and locates with slip fit dowel pins for accuracy



Unit has top manifold ports



Fingers attach to jaws with screws and locate with dowel pins or by keying

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**1.3-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

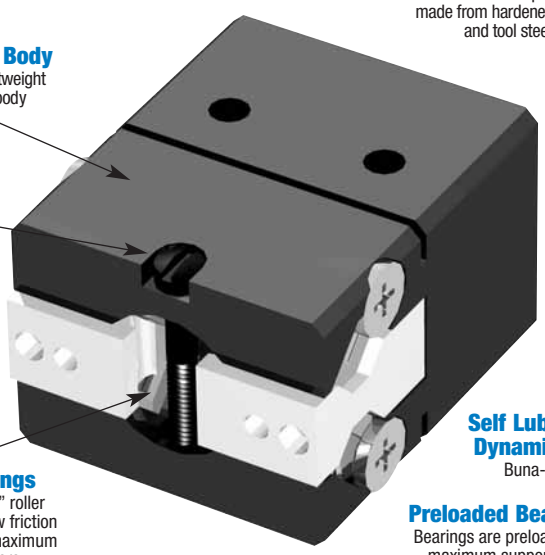
Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~250° F**	**-30°~120° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

Application restrictions
Dirty or gritty environments
Machining operations generating chips
Environments with loose particulate
Applications where mechanism lubricant could cause contamination

*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features



Slip Fit Dowel Pin Holes
Located in body and jaws

Quality Components
Internal drive components are made from hardened bearing and tool steels

One Piece Body
One piece lightweight aluminum body

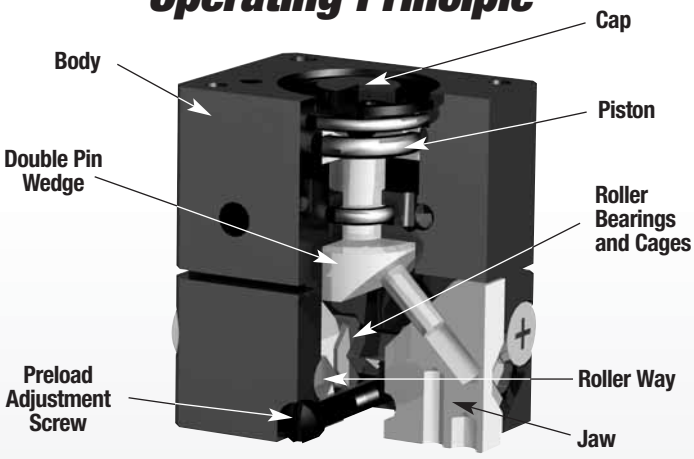
Adjustable Preload
Adjustable preload screw allows for adjustment of preload on roller bearings

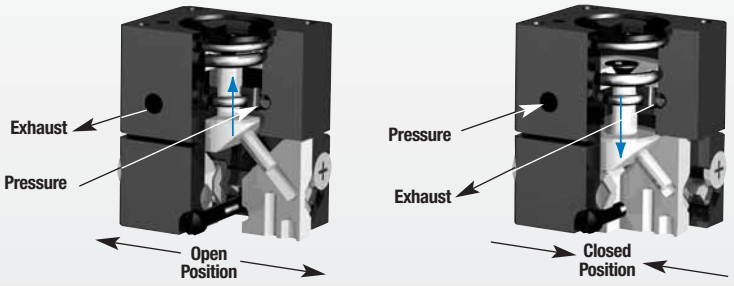
Self Lubricating Dynamic Seals
Buna-N only

Roller Bearings
Patented Dual-"V" roller bearings provide low friction rolling motion and maximum rigidity for fingers

Preloaded Bearings
Bearings are preloaded for maximum support and zero side play

Operating Principle





- A double acting piston is connected by a shaft to a double sided pin wedge.
- The pin wedge slides in a hole located in each of the jaws converting vertical motion of the wedge into horizontal synchronous motion of the ja ws.
- This gripper is suitable for internal or external gripping.

U.S. Patent #5,529,359 & #5,125,708
Designed and manufactured in the USA

Style-RPM Parallel Gripper

Size -1M

Style:	**RPM-1M**	
Stroke:	0.13 in.	3.2 mm
Grip Force:	8 lbs.	36 N
Weight:	0.052 lbs.	.02 Kg

See Page **1.70**

Style-RPM Parallel Gripper

Size -2M

Style:	**RPM-2M**	
Stroke:	0.19 in.	4.8 mm
Grip Force:	8 lbs.	36 N
Weight:	0.058 lbs.	.03 Kg

See Page **1.71**

Style-RPM Parallel Gripper

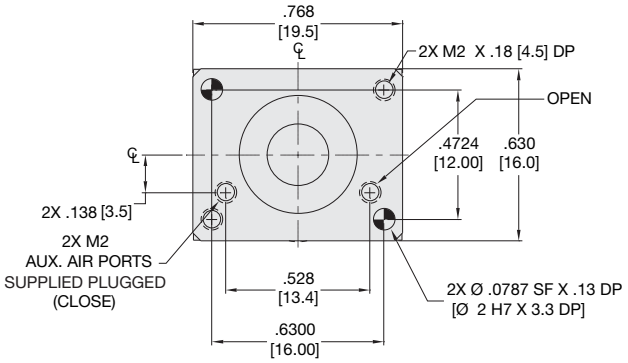
Size -3M

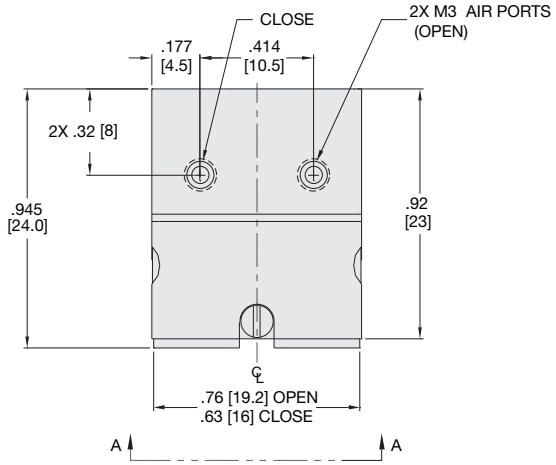
Style:	**RPM-3M**	
Stroke:	0.25 in.	6.3 mm
Grip Force:	8 lbs.	36 N
Weight:	0.074 lbs.	.03 Kg

See Page **1.72**

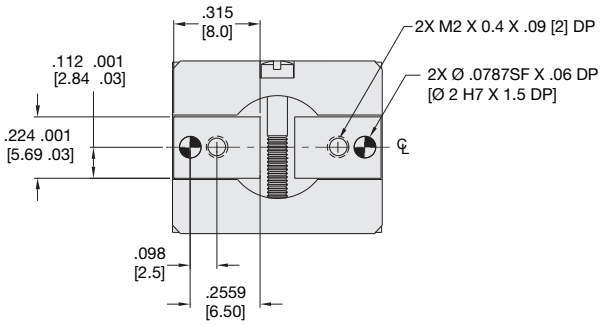
PARALLEL GRIPPER RPM-1M
MINIATURE SERIES

Robohand





Specifications	RPM-1M	
Total Rated Grip Force **F** @ 100 psi, 7 bar	8 lbs.	36 N
Stroke	.13 in.	3.2 mm
Weight	0.052 lbs.	0.024 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	0.394 in.	10.0 mm
Displacement	0.008 in^3	0.13 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation	0.10 sec.	0.10 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

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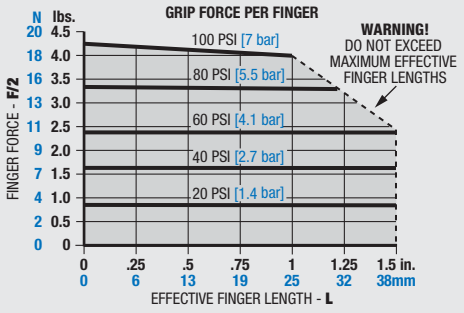
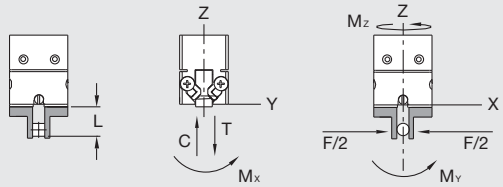




Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	20 lbs.	89 N	7 lbs.	31 N
Maximum Compressive **C**	20 lbs.	89 N	7 lbs.	31 N
Maximum Moment $\mathbf{M_X}$	12 in.-lbs.	1 Nm	4 in.-lbs.	0.5 Nm
Maximum Moment $\mathbf{M_Y}$	15 in.-lbs.	2 Nm	5 in.-lbs.	0.6 Nm
Maximum Moment $\mathbf{M_Z}$	12 in.-lbs.	1 Nm	4 in.-lbs.	0.5 Nm

†Capacities are per set of jaws and are not simultaneous

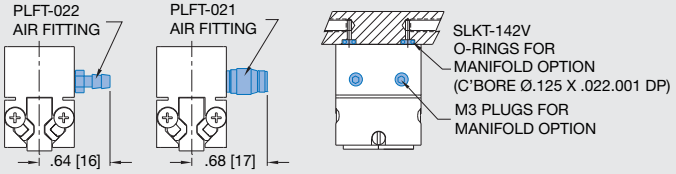
How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL

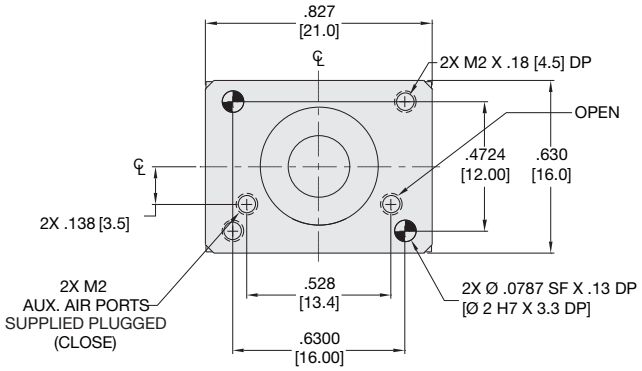
RPM-1M - V

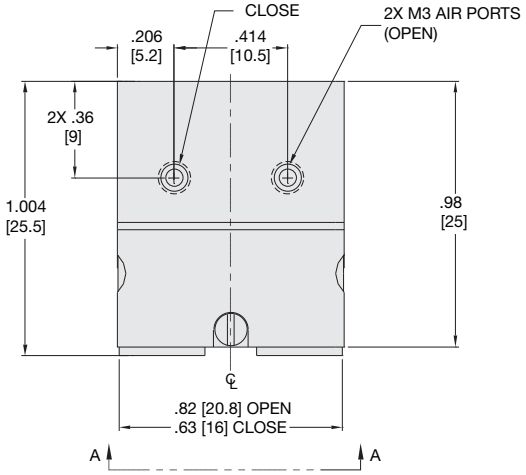
VITON® SEALS

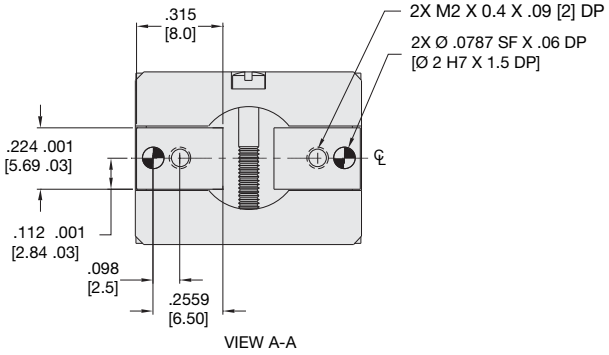
PNEUMATIC ACCESSORIES	Order #	QTY/UNIT
M3 Plumbing Fitting Push-in for 3mm O.D. Tube	**PLFT-021**	**2**
M3 Plumbing Fitting Barb for 2mm I.D. Tube	**PLFT-022**	**2**
Standard Seal Repair Kit	**SLKT-121**	**1**
Viton® Seal Repair Kit	**SLKT-121V**	**1**
Top Air Ports Manifold Seal Kit (available in Viton® only)	**SLKT-142V**	**1**



Specifications	RPM-2M	
Total Rated Grip Force **F** @ 100 psi, 7 bar	8 lbs.	36 N
Stroke	.19 in.	4.8 mm
Weight	0.058 lbs.	0.026 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	0.394 in.	10.0 mm
Displacement	0.012 in^3.	0.20 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation	0.10 sec.	0.10 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	







VIEW A-A

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

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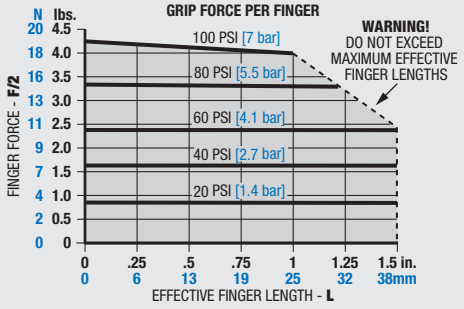
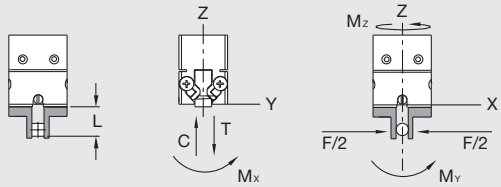




Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	20 lbs.	89 N	7 lbs.	31 N
Maximum Compressive **C**	20 lbs.	89 N	7 lbs.	31 N
Maximum Moment M_X	12 in.-lbs.	1 Nm	4 in.-lbs.	0.5 Nm
Maximum Moment M_Y	15 in.-lbs.	2 Nm	5 in.-lbs.	0.6 Nm
Maximum Moment M_Z	12 in.-lbs.	1 Nm	4 in.-lbs.	0.5 Nm

†Capacities are per set of jaws and are not simultaneous

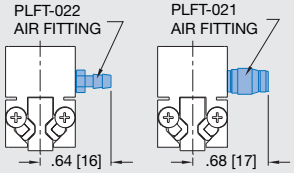
How to Order: (Order Separately)

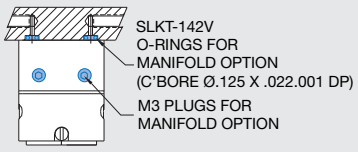
BASIC MODEL

RPM-2M - V

VITON® SEALS

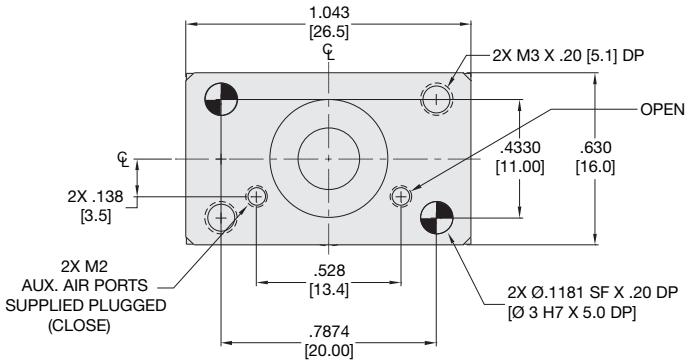
PNEUMATIC ACCESSORIES	Order #	QTY/UNIT
M3 Plumbing Fitting Push-in for 3mm O.D. Tube	**PLFT-021**	**2**
M3 Plumbing Fitting Barb for 2mm I.D. Tube	**PLFT-022**	**2**
Standard Seal Repair Kit	**SLKT-121**	**1**
Viton® Seal Repair Kit	**SLKT-121V**	**1**
Top Air Ports Manifold Seal Kit (available in Viton® only)	**SLKT-142V**	**1**

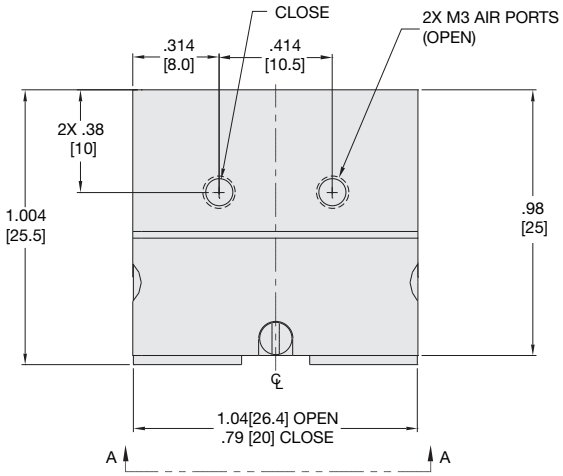




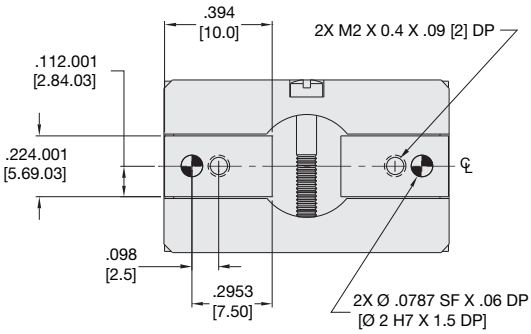
PARALLEL GRIPPER RPM-3M
MINIATURE SERIES

Robohand





Specifications	RPM-3M	
Total Rated Grip Force **F** @ 100 psi, 7 bar	8 lbs.	36 N
Stroke	.25 in.	6.3 mm
Weight	0.074 lbs.	0.034 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	0.394 in.	10.0 mm
Displacement	0.015 in^3	0.25 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation	0.10 sec.	0.10 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	



VIEW A-A

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

	Imperial in.	Metric [mm]
	0.00 = ± .01	[0.] = [± .25]
	0.000 = ± .005	[0.0] = [± .13]
	0.0000 = ± .0005	[0.00] = [± .013]

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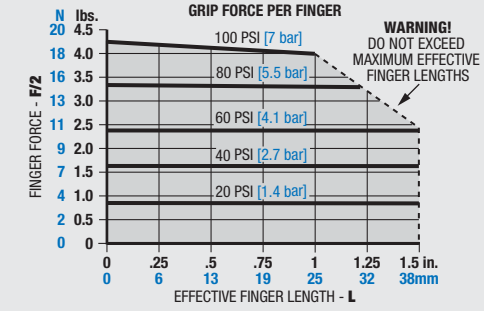
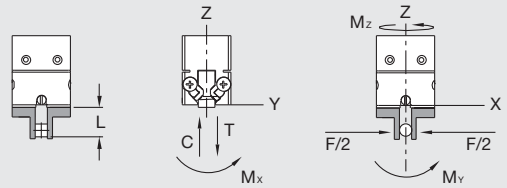




Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	20 lbs.	89 N	7 lbs.	31 N
Maximum Compressive **C**	20 lbs.	89 N	7 lbs.	31 N
Maximum Moment M_X	12 in.-lbs.	1 Nm	4 in.-lbs.	0.5 Nm
Maximum Moment M_Y	15 in.-lbs.	2 Nm	5 in.-lbs.	0.6 Nm
Maximum Moment M_Z	12 in.-lbs.	1 Nm	4 in.-lbs.	0.5 Nm

†Capacities are per set of jaws and are not simultaneous

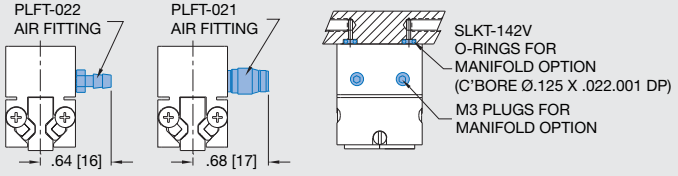
How to Order: (Order Separately)

BASIC MODEL

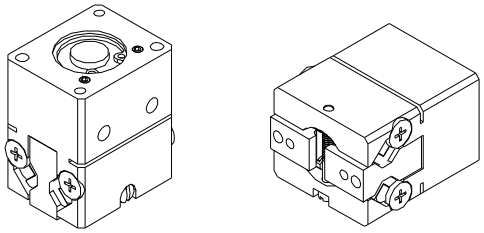
RPM-3M-V

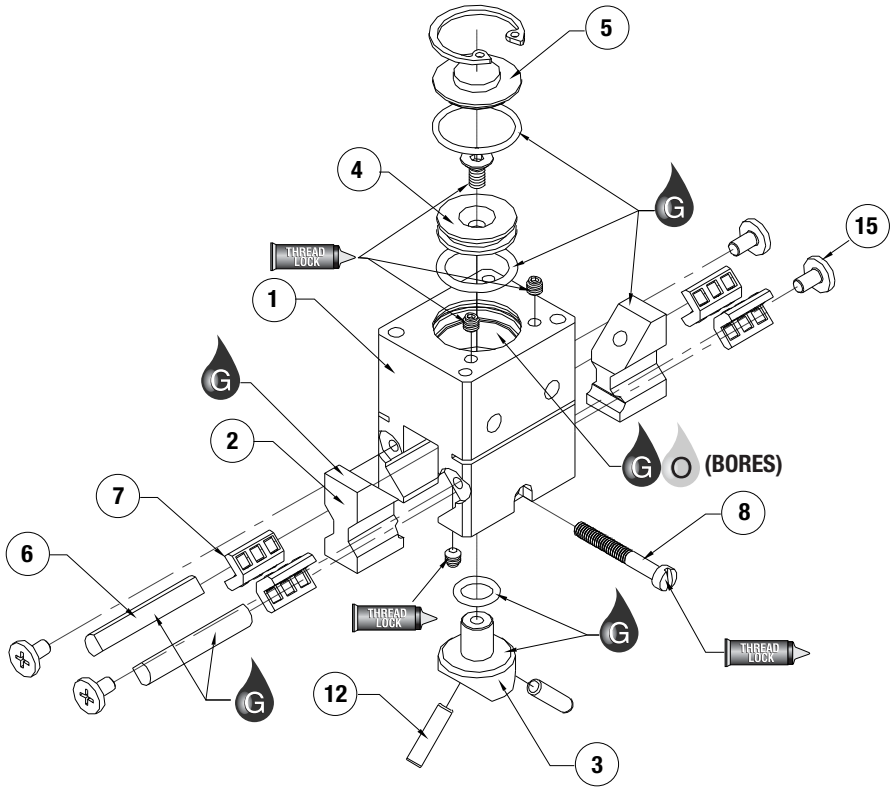
VITON® SEALS

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
M3 Plumbing Fitting Push-in for 3mm O.D. Tube	**PLFT-021**	**2**
M3 Plumbing Fitting Barb for 2mm I.D. Tube	**PLFT-022**	**2**
Standard Seal Repair Kit	**SLKT-121**	**1**
Viton® Seal Repair Kit	**SLKT-121V**	**1**
Top Air Ports Manifold Seal Kit (available in Viton® only)	**SLKT-142V**	**1**



RPM Series Exploded View





Item	Qty	Name
01	1	Body
02	2	Jaw
03	1	Wedge
04	1	Piston
05	1	Cap
06	2	Way
07	4	Kit,Roller Bearings And Cage
08	1	Preload
12	2	Dowel Pin
15	4	Stop Screw

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedure

1) Lubricate and install seals
2) Install pins (12) and wedge (3) into body
3) Install piston (4), screw, cap (5), & retaining ring
4) Install set screws for airport plugs
5) Install jaws (2) over pins
6) Install ways (6),cages (7), & screws (15)

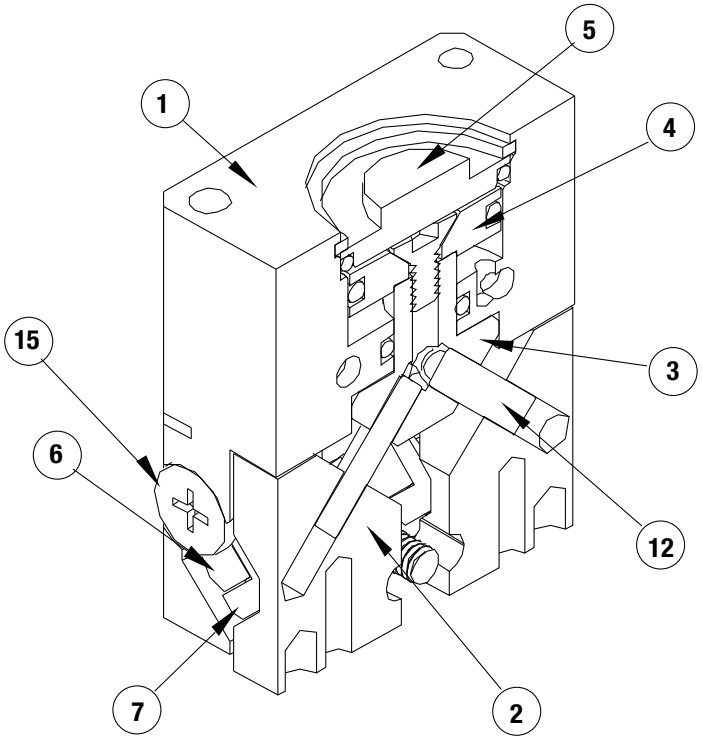
Preload Adjustment

1) Install preload screw (8) w/Loctite on 1st 6-8 threads
2) Tighten until there is no side-pay in the jaws
3) Cycle gripper (w/fingers preferably)
4) Recheck for play in jaws & tighten or loosen as needed

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

RPM Series Assembled View



Item	Qty	Name
01	1	Body
02	2	Jaw
03	1	Wedge
04	1	Piston
05	1	Cap
06	2	Way
07	4	Kit,Roller Bearings And Cage
08	1	Preload
12	2	Dowel Pin
15	4	Stop Screw

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

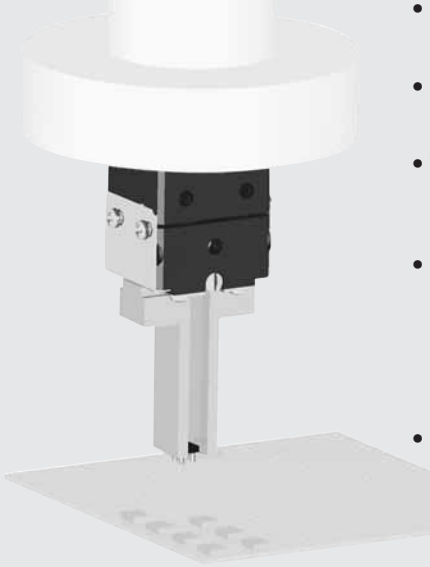
Non-Repairable Items List
NONE

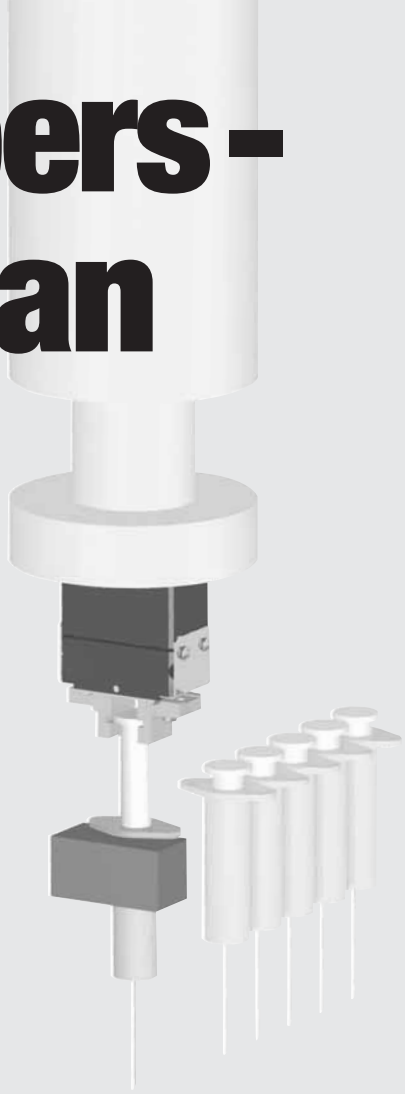
SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection

DESIGN NOTES

QUALITY PRECISION DURABILITY

Parallel Grippers - Miniature Clean Room Series

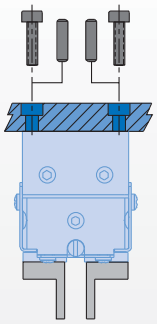




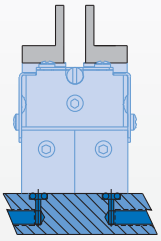
- **Precision applications:**
  Preloaded dual-"V" roller bearings eliminate side play for excellent part position repeatability.
- **Miniature size:**
  Compact design allows for gripping small parts in small spaces.
- **Top manifold:**
  Grippers can be manifolded through the top mounting surface. This eliminates the need for air fittings and allows grippers to be mounted in close array.
- **Clean room rated:**
  A corrosion resistant shield protects the drive and bearing mechanism. All internal components are lubricated with clean room grade grease. The scavenge port can be used with vacuum pressure to prevent escape of particulate generated by the internal mechanism.
- **Harsh environments:**
  All moving components are located within the corrosion resistant cover. The body has a purge port which can expel contaminates from the mechanism using low pressure compressed air.

Mounting Information:

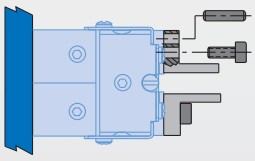
Grippers can be mounted & operated in any orientation



Body mounts with screws and locates with slip fit dowel pins for accuracy



Unit has top manifold ports



Fingers attach to jaws with screws and locate with dowel pins or by keying

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~250° F**	**-30°~120° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features

Preload Bearings
Bearings are preloaded for maximum support and zero side play

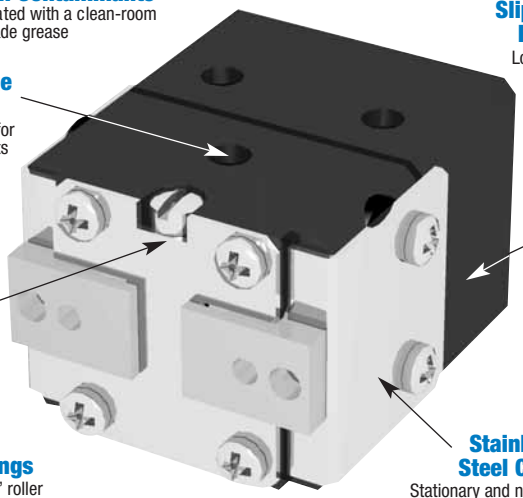
Hard Coat Anodize
The body has hard-coat anodize 60 RC with Teflon® impregnation

Quality Components
External components are made from corrosion resistant materials for resistance to de-ionized water or for use in FDA & medical parts handling applications

Clean Room Contaminants
Units are lubricated with a clean-room grade grease

Slip Fit Dowel Pin Holes
Located in body and jaws

Purge/Scavenge Port
Purge/Scavenge port for extreme environments from dirty & gritty to clean-room Class 10 or better



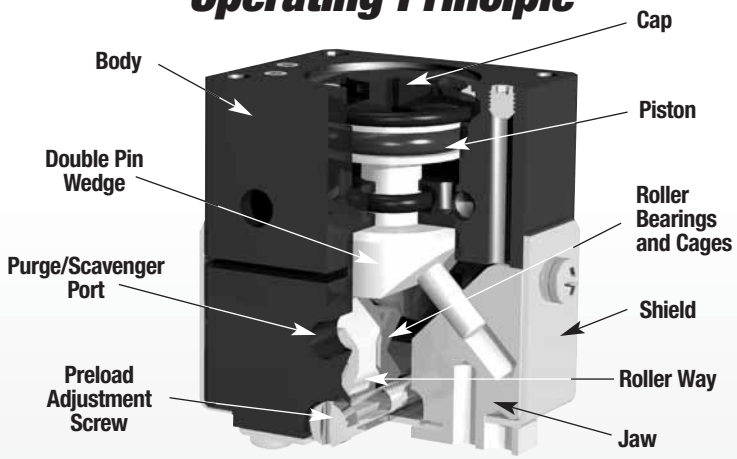
One Piece Body
One piece lightweight aluminum body

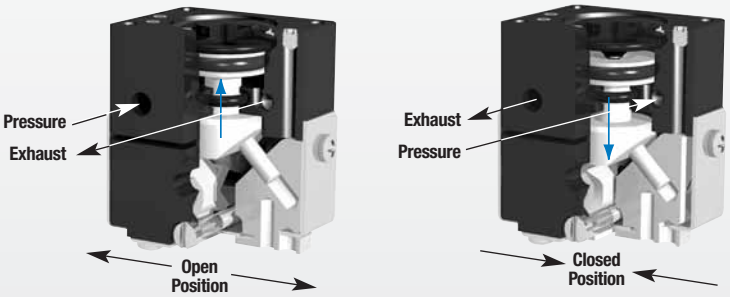
Adjustable Preload Screw
Adjustable preload screw allows for adjustment of preload on roller bearings

Roller Bearings
Patented Dual-"V" roller bearings provide low friction rolling motion and maximum rigidity for fingers

Stainless Steel Cover
Stationary and non-contacting cover eliminates the possibility of particle generation

Operating Principle





- A double acting piston is connected by a shaft to a double sided pin wedge.
- The pin wedge slides in a hole located in each of the jaws converting vertical motion of the wedge into horizontal synchronous motion of the ja ws.
- This gripper is suitable for internal or external gripping.

U.S. Patent #5,529,359 & #5,125,708
Designed and manufactured in the USA

Style-RPMC Parallel Gripper

Size -1M

Style:	**RPMC-1M**	
Stroke:	0.13 in.	3.2 mm
Grip Force:	8 lb	36 N
Weight:	0.052 lb	.02 Kg

See Page 1.78

Style-RPMC Parallel Gripper

Size -2M

Style:	**RPMC-2M**	
Stroke:	0.19 in.	4.8 mm
Grip Force:	8 lb	36 N
Weight:	0.058 lb	.03 Kg

See Page 1.79

Style-RPMC Parallel Gripper

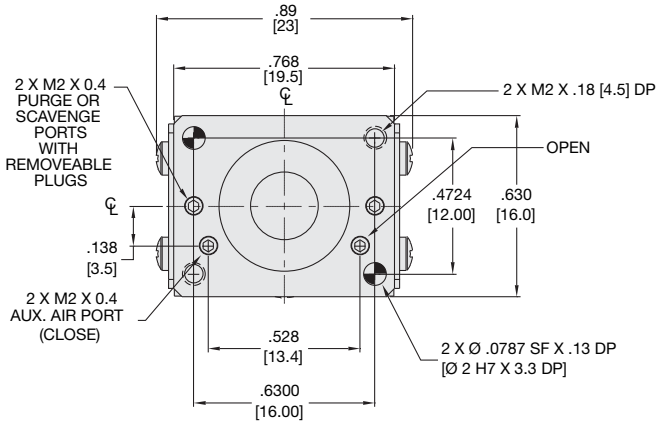
Size -3M

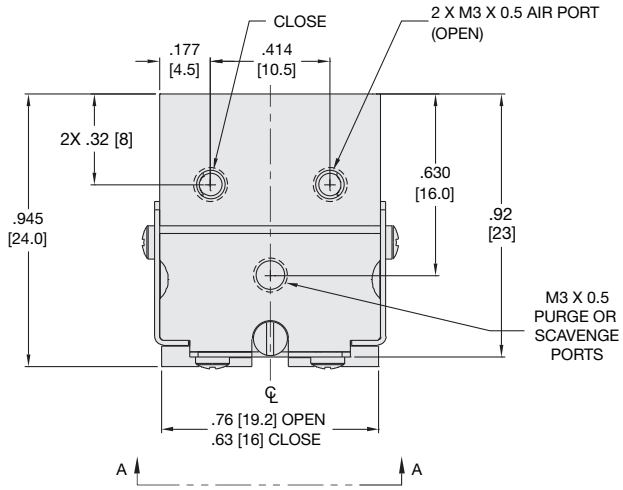
Style:	**RPMC-3M**	
Stroke:	0.25 in.	6.3 mm
Grip Force:	8 lb	36 N
Weight:	0.074 lb	.03 Kg

See Page 1.80

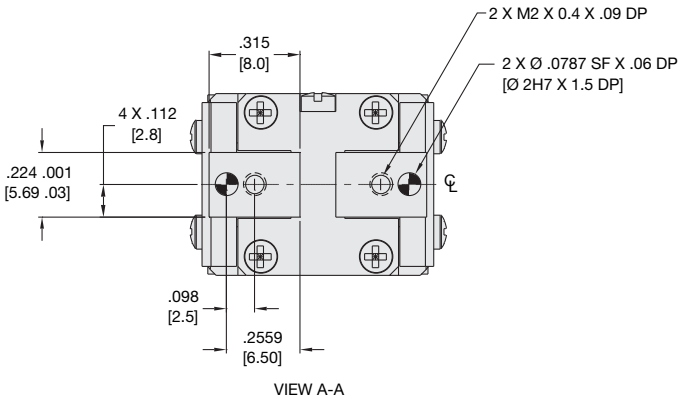
PARALLEL GRIPPER RPMC-1M
MINIATURE CLEAN ROOM SERIES

Robohand





Specifications	RPMC-1M	
Total Rated Grip Force **F** @ 100 psi, 7 bar	8 lb	36 N
Stroke	.13 in.	3.2 mm
Weight	0.052 lb	0.024 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore	0.394 in.	10.0 mm
Displacement	0.008 in^3.	0.13 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation Time	0.10 sec.	0.10 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

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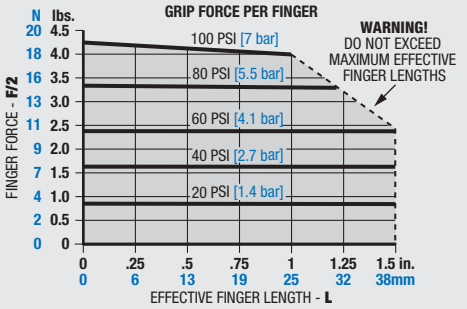
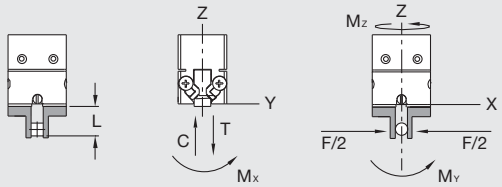




Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	20 lbs.	89 N	7 lbs.	31 N
Maximum Compressive **C**	20 lbs.	89 N	7 lbs.	31 N
Maximum Moment $\mathbf{M_x}$	12 in.- lbs.	1 Nm	4 in.- lbs.	0.5 Nm
Maximum Moment $\mathbf{M_y}$	15 in.- lbs.	2 Nm	5 in.- lbs.	0.6 Nm
Maximum Moment $\mathbf{M_z}$	12 in.- lbs.	1 Nm	4 in.- lbs.	0.5 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

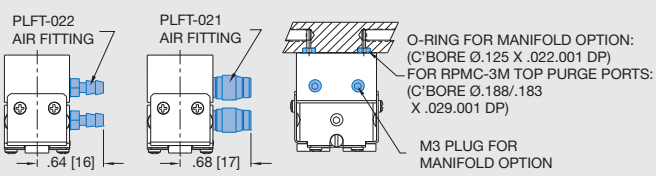
BASIC MODEL

RPMC-1M - V

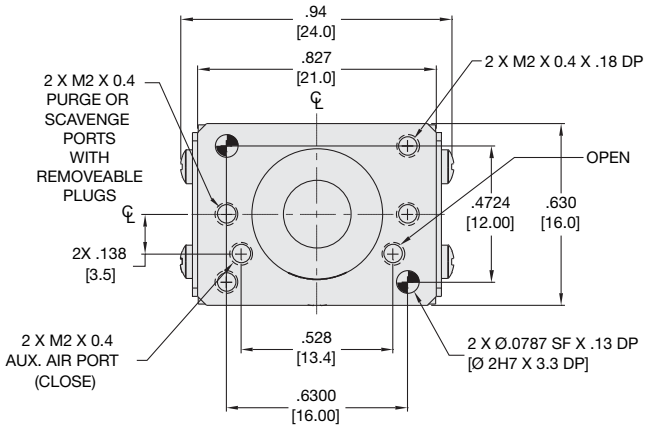
VITON® SEALS

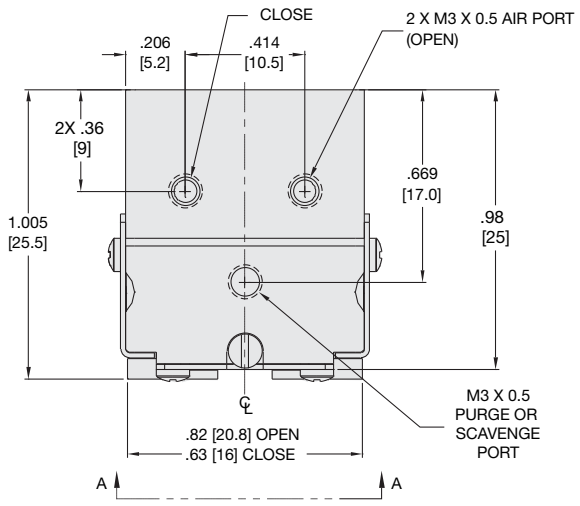
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
M3 Plumbing Fitting Push-in for 3mm O.D. Tube	**PLFT-021**	**2**
M3 Plumbing Fitting Barb for 2mm I.D. Tube	**PLFT-022**	**2**
Standard Seal Repair Kit	**SLKT-121**	**1**
Viton® Seal Repair Kit	**SLKT-121V**	**1**
Top Air Ports Manifold Seal Kit (available in Viton® only)	**SLKT-143V**	**1**

For Detailed Accessory Mounting Technical Data Refer to Accessories Section

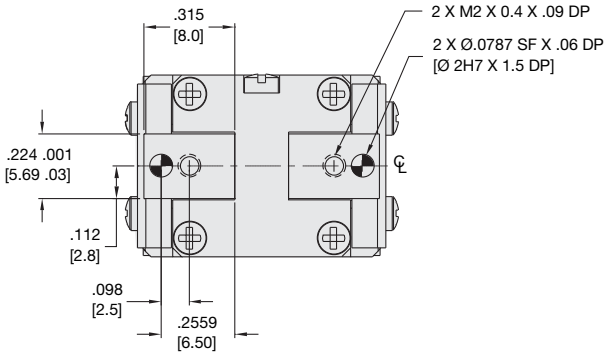


PARALLEL GRIPPER RPMC-2M
MINIATURE CLEAN ROOM SERIES





Specifications	RPMC-2M	
Total Rated Grip Force **F** @ 100 psi, 7 bar	8 lb	36 N
Stroke	.19 in.	4.8 mm
Weight	0.058 lb	0.026 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore	0.394 in.	10.0 mm
Displacement	0.012 in^3.	0.20 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation Time	0.10 sec.	0.10 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	



VIEW A-A

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

	Imperial in.	Metric [mm]
	0.00 = ±.01	[0.] = [±.25]
	0.000 = ±.005	[0.0] = [±.13]
	0.0000 = ±.0005	[0.00] = [±.013]

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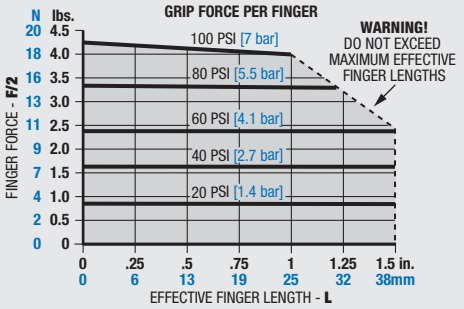
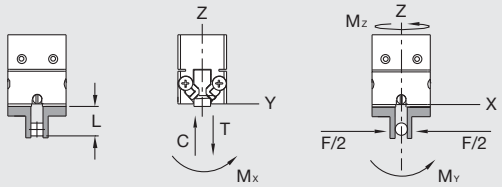




Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	20 lbs.	89 N	7 lbs.	31 N
Maximum Compressive **C**	20 lbs.	89 N	7 lbs.	31 N
Maximum Moment M_x	12 in.-lbs.	1 Nm	4 in.-lbs.	0.5 Nm
Maximum Moment M_y	15 in.-lbs.	2 Nm	5 in.-lbs.	0.6 Nm
Maximum Moment M_z	12 in.-lbs.	1 Nm	4 in.-lbs.	0.5 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

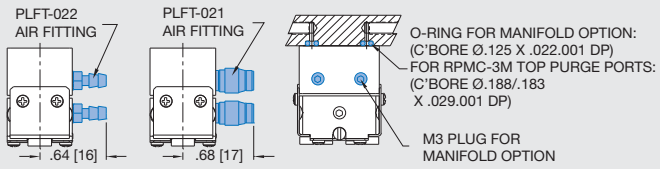
BASIC MODEL

RPMC-2M - V

VITON® SEALS

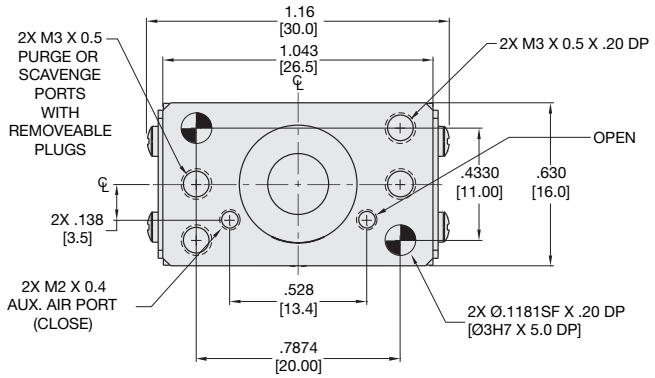
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
M3 Plumbing Fitting Push-in for 3mm O.D. Tube	**PLFT-021**	**2**
M3 Plumbing Fitting Barb for 2mm I.D. Tube	**PLFT-022**	**2**
Standard Seal Repair Kit	**SLKT-121**	**1**
Viton® Seal Repair Kit	**SLKT-121V**	**1**
Top Air Ports Manifold Seal Kit (available in Viton® only)	**SLKT-143V**	**1**

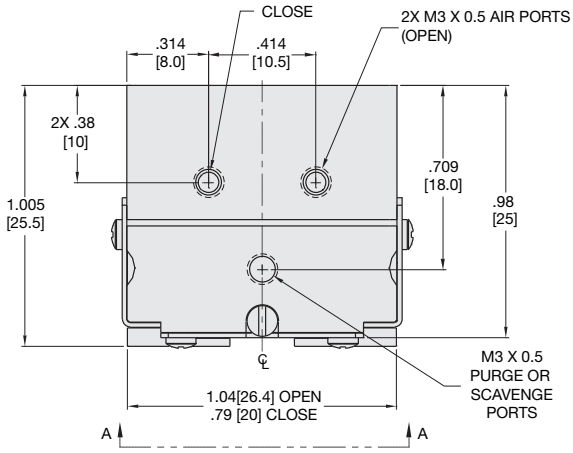
For Detailed Accessory Mounting Technical Data Refer to Accessories Section



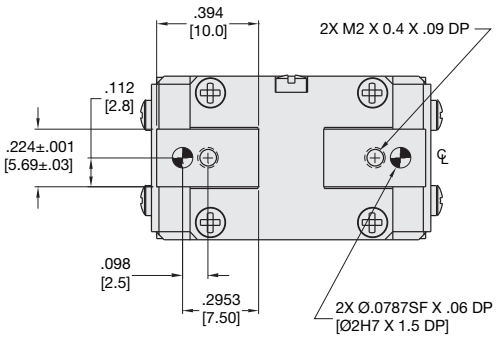
PARALLEL GRIPPER RPMC-3M
MINIATURE CLEAN ROOM SERIES

Robohand





Specifications	RPMC-3M	
Total Rated Grip Force **F** @ 100 psi, 7 bar	8 lb	36 N
Stroke	.25 in.	6.3 mm
Weight	0.074 lb	0.034 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore	0.394 in.	10.0 mm
Displacement	0.015 in^3.	0.25 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation Time	0.10 sec.	0.10 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	



VIEW A-A

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

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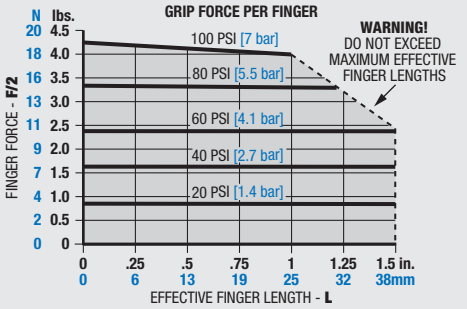
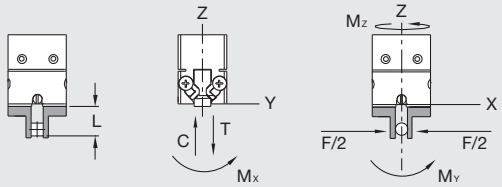




Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	20 lbs.	89 N	7 lbs.	31 N
Maximum Compressive **C**	20 lbs.	89 N	7 lbs.	31 N
Maximum Moment **Mx**	12 in.-lbs.	1 Nm	4 in.-lbs.	0.5 Nm
Maximum Moment **My**	15 in.-lbs.	2 Nm	5 in.-lbs.	0.6 Nm
Maximum Moment **Mz**	12 in.-lbs.	1 Nm	4 in.-lbs.	0.5 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

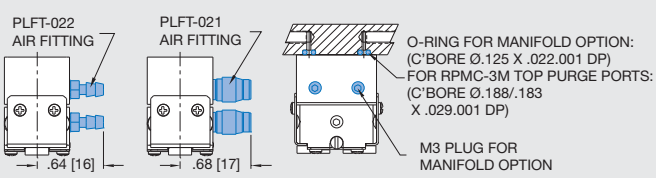
BASIC MODEL

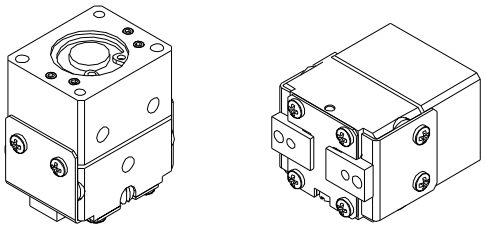
RPMC-3M - V

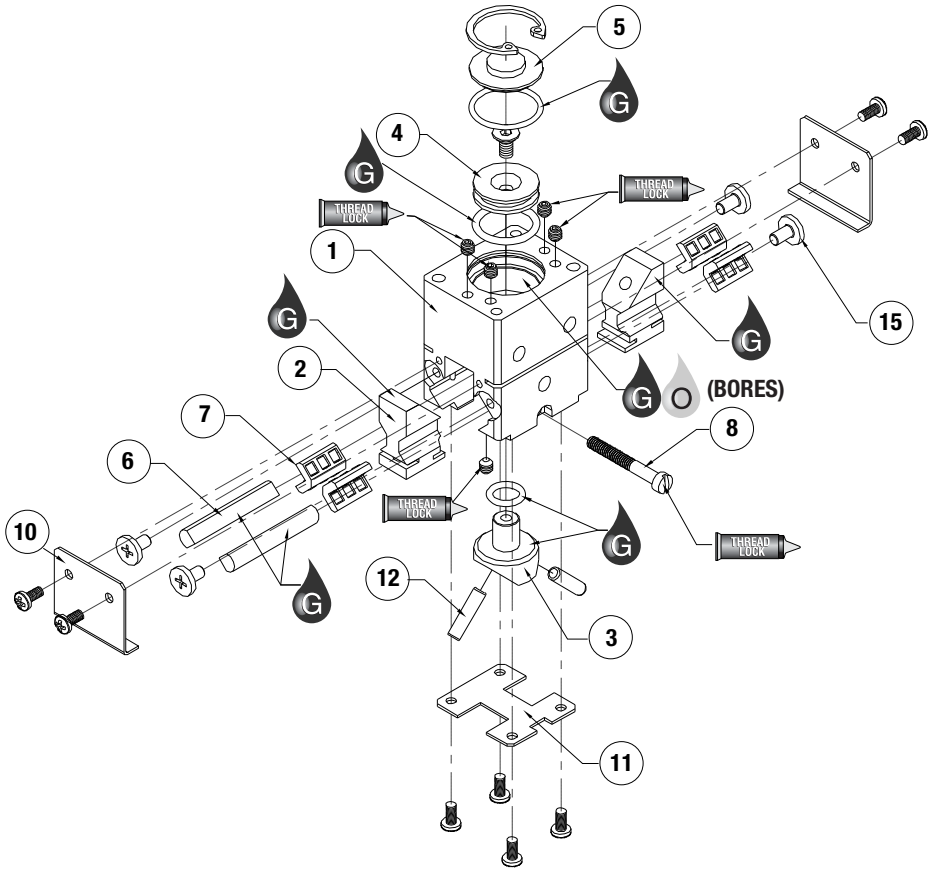
VITON® SEALS

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
M3 Plumbing Fitting Push-in for 3mm O.D. Tube	**PLFT-021**	**2**
M3 Plumbing Fitting Barb for 2mm I.D. Tube	**PLFT-022**	**2**
Standard Seal Repair Kit	**SLKT-121**	**1**
Viton® Seal Repair Kit	**SLKT-121V**	**1**
Top Air Ports Manifold Seal Kit (available in Viton® only)	**SLKT-143V**	**1**

For Detailed Accessory Mounting Technical Data Refer to Accessories Section







Item	Qty	Name
01	1	Body
02	2	Jaw
03	1	Wedge
04	1	Piston
05	1	Cap
06	2	Way
07	4	Kit,Roller Bearings And Cage
08	1	Screw,Preload
10	2	Shield,Side
11	1	Shield,Top
12	2	Dowel Pin
15	4	Stop Screw

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedures

1) Lubricate and install seals.
2) Install pins (12) and wedge (3) into body.
3) Install piston (4), screw, cap (5), & Retaining Ring.
4) Install set screws for air port plugs.
5) Install jaws (2) over pins.
6) Install ways (6), cages (7), & screws (15).

Preload Adjustment

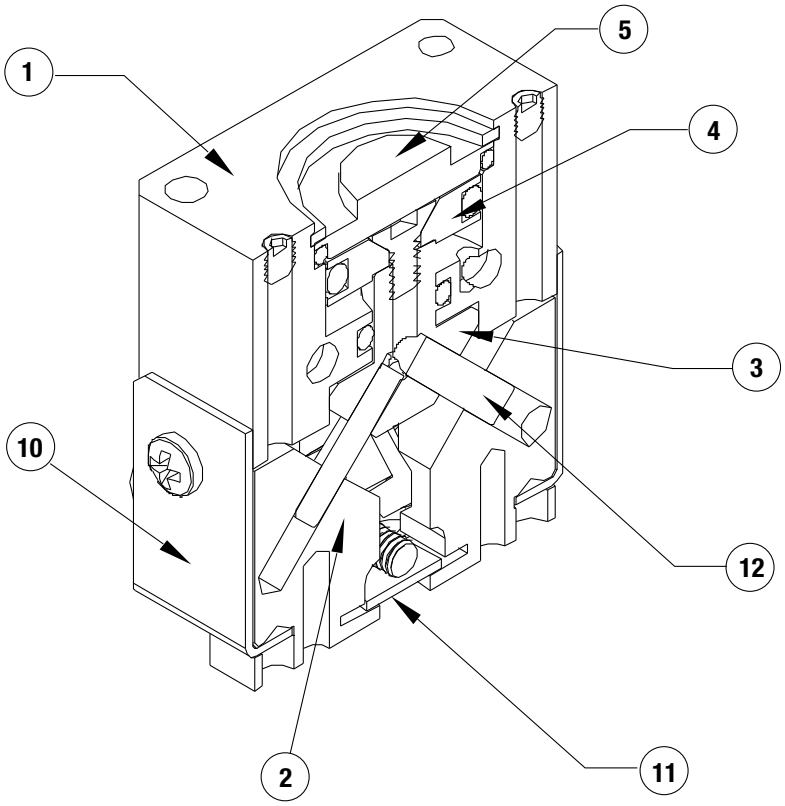
1) Install preload screw (8) with Loctite on first 6 -8 threads.
2) Tighten until there is no side play in the jaws.
3) Cycle gripper(w/finger assembly)
4) Recheck for play in jaws & tighten or loosen as needed.

SK

Seal Repair Kit Order #'s
See Product Data Sheets

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

RPMC Series Assembled View



Item	Qty	Name
01	1	Body
02	2	Jaw
03	1	Wedge
04	1	Piston
05	1	Cap
06	2	Way
07	4	Kit,Roller Bearings And Cage
08	1	Screw,Preload
10	2	Shield,Side
11	1	Shield,Top
12	2	Dowel Pin
15	4	Stop Screw

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

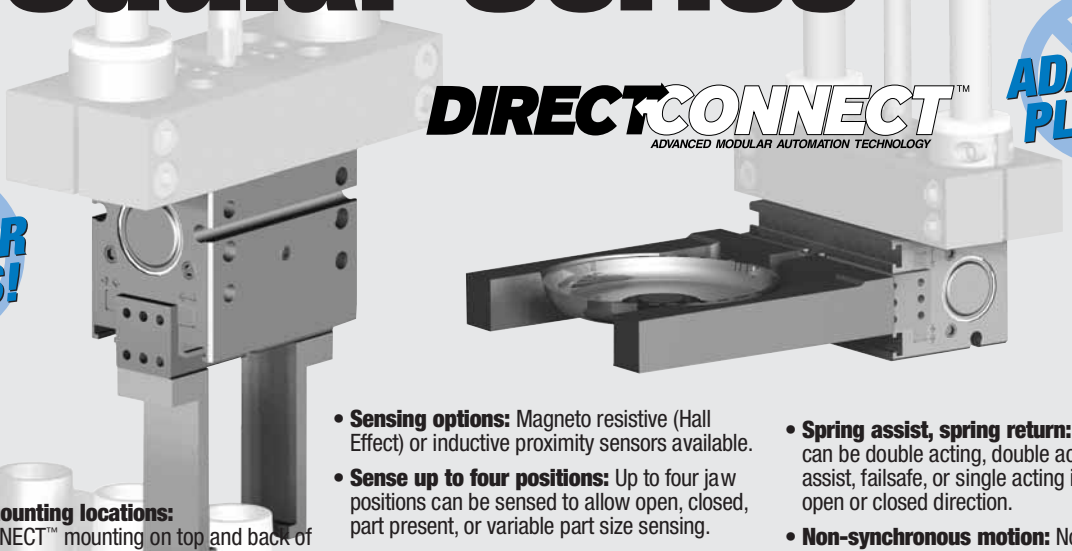
DESIGN NOTES

QUALITY PRECISION DURABILITY

Parallel Grippers - DPG DIRECTCONNECT™ Modular Series

DIRECTCONNECT™ ADVANCED MODULAR AUTOMATION TECHNOLOGY

NO ADAPTER PLATES!

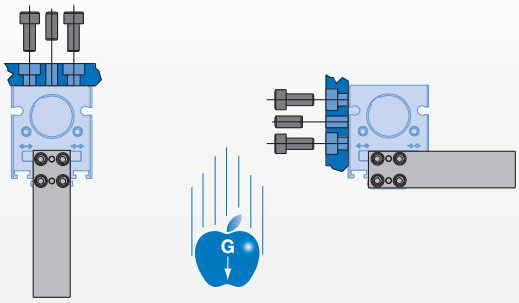


NO ADAPTER PLATES!

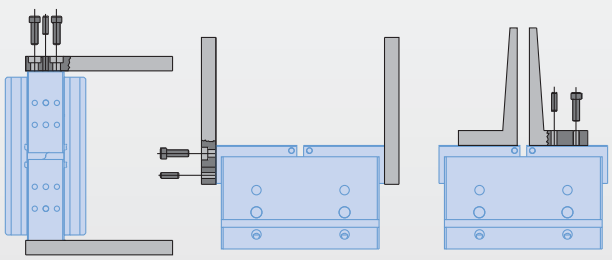
- **Multiple mounting locations:** DIRECTCONNECT™ mounting on top and back of body. Fingers mount to sides or bottom of jaws.
- **Multiple air port positions:** Tapped air ports on front and both sides are standard. Top air ports with counterbores for o-ring manifolded operation and threads for screw-in type fittings are available.
- **Sensing options:** Magneto resistive (Hall Effect) or inductive proximity sensors available.
- **Sense up to four positions:** Up to four jaw positions can be sensed to allow open, closed, part present, or variable part size sensing.
- **Shielded to repel contaminate:** Design repels chips and particulate. Closed jaw position spacing eliminates "chip compactor" effect.
- **Longer finger applications:** Rigid design and full body support of jaw allows for longer finger lengths.
- **Spring assist, spring return:** Cylinders can be double acting, double acting spring assist, failsafe, or single acting in either open or closed direction.
- **Non-synchronous motion:** Non-synchronous motion option provides independent jaw motion allowing the gripper to pick or place at a point other than it's center.
- **Single jaw motion with fixed jaw:** This option locks one jaw in a fixed position while the other jaw is free to move.

Mounting Information:

Grippers can be mounted & operated in any orientation



Body mounts with screws and locates with slip fit dowel pins for accuracy



Fingers attach with screws and locate on jaws by keying or dowel pin holes

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting or Single Acting Spring Return or Double Acting Spring Assist**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position for Double Acting *or* 3-way, 2-position for Single Acting**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~300° F**	**-30°~150° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

Application Restrictions
Applications where mechanism lubricant could cause contamination

*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features

Hard Coat Anodize
The body and jaws have hard-coat anodize 60RC with Teflon® impregnation

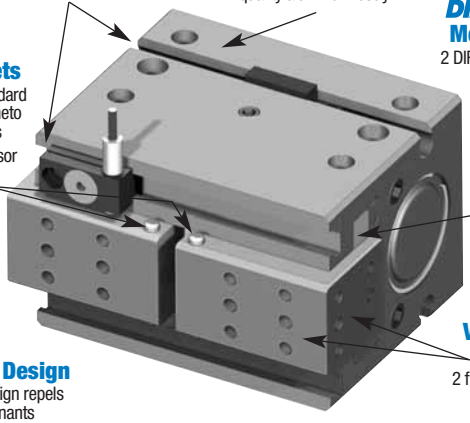
High Temperature
Optional Viton® seals are available for high temperature applications

Multiple Air Port Locations
3 standard airport locations (front & both sides)
Optional top airports available

Sensor Mounting Slots
Standard mounting slots for magneto resistive and inductive sensors (sensors sold separately)

One Piece Body
One piece lightweight aircraft quality aluminum body

DIRECTCONNECT Mounting Patterns
2 DIRECTCONNECT™ mounting surfaces on top and back of body



Sensor Targets
Magnets come standard in pistons for magneto resistive sensors
Four inductive sensor targets on sides of jaws

Superior Jaw Support
Jaws are supported throughout the length of the body

Dowel Holes
Slip fit dowel pin holes in body and jaws

Versatile Finger Mounting
2 finger mounting surfaces on each jaw

Shielded Design
Shielded design repels contaminants

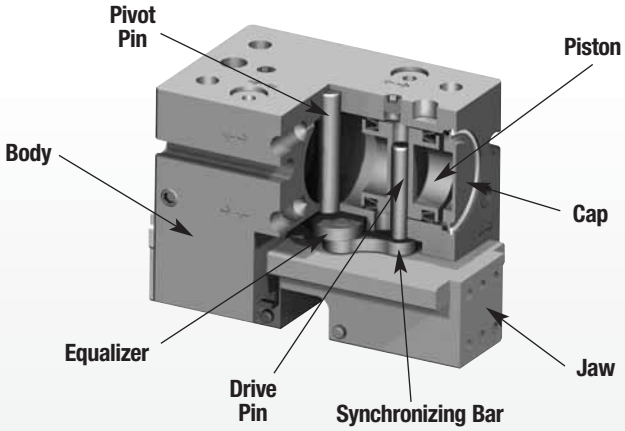
Extremely Compact & Robust Design

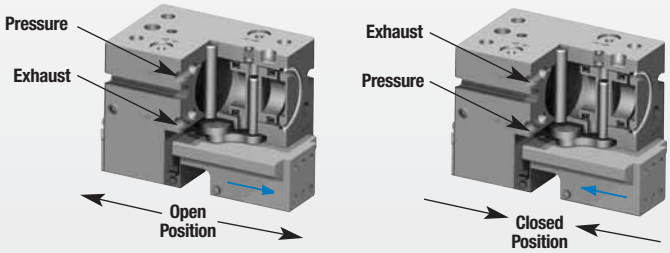
Multiple Sensor Capabilities
Capable of sensing both jaws in the open and closed positions (up to 4 sensors can be used for multi-position sensing)

Optional Features
- Top air ports eliminating the need for airlines
- Fixed jaw configurations
- Spring assist for open or close stroke
- Non-synchronous version

Self-Lubricating Seals
Self lubricating dynamic seals (Buna-N only)

Operating Principle





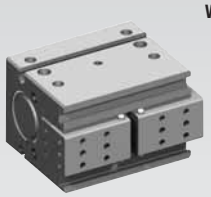
- Dual double acting opposed pistons, connected to both a jaw and a synchronizing bar by a drive pin, actuate in opposite directions.
- The synchronizing bars are connected to the equalizer which synchronizes the motion.
- Suitable for internal or external gripping.
- The synchronizing elements can be removed for non-synchronous operation.

Designed and manufactured in the USA

Style -DPG-10M Parallel Gripper

Size -1

Style:	**DPG-10M-1**	
Stroke:	0.25 in.	6.4 mm
Grip Force:	50 lbs.	222 N
Weight:	0.39 lbs.	0.17 Kg



See Page 1.86

Style -DPG-10M Parallel Gripper

Size -2

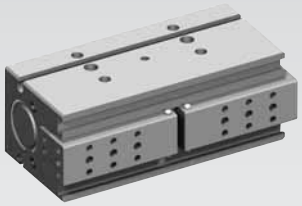
Style:	**DPG-10M-2**	
Stroke:	0.50 in.	12.7 mm
Grip Force:	50 lbs.	222 N
Weight:	0.53 lbs.	0.24 Kg

See Page 1.88

Style -DPG-10M Parallel Gripper

Size -3

Style:	**DPG-10M-3**	
Stroke:	0.75 in.	19.1 mm
Grip Force:	50 lbs.	222 N
Weight:	0.68 lbs.	0.30 Kg

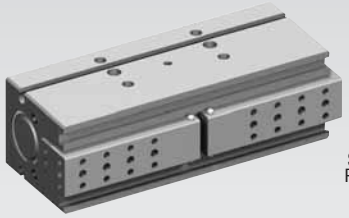


See Page 1.90

Style -DPG-10M Parallel Gripper

Size -4

Style:	**DPG-10M-4**	
Stroke:	1.00 in.	25.4 mm
Grip Force:	50 lbs.	222 N
Weight:	0.81 lbs.	0.36 Kg



See Page 1.92

DIRECTCONNECT™

PARALLEL GRIPPER DPG-10M-1
DIRECTCONNECT™ MODULAR SERIES

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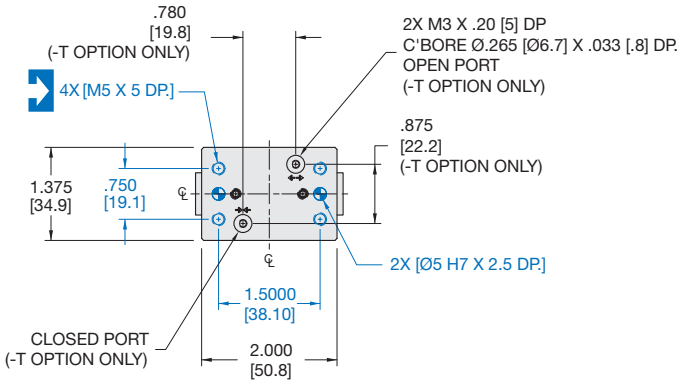
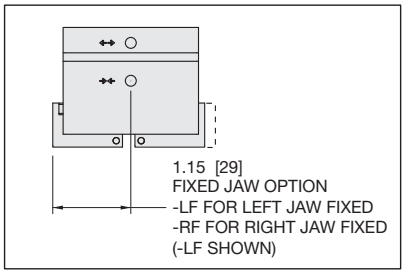
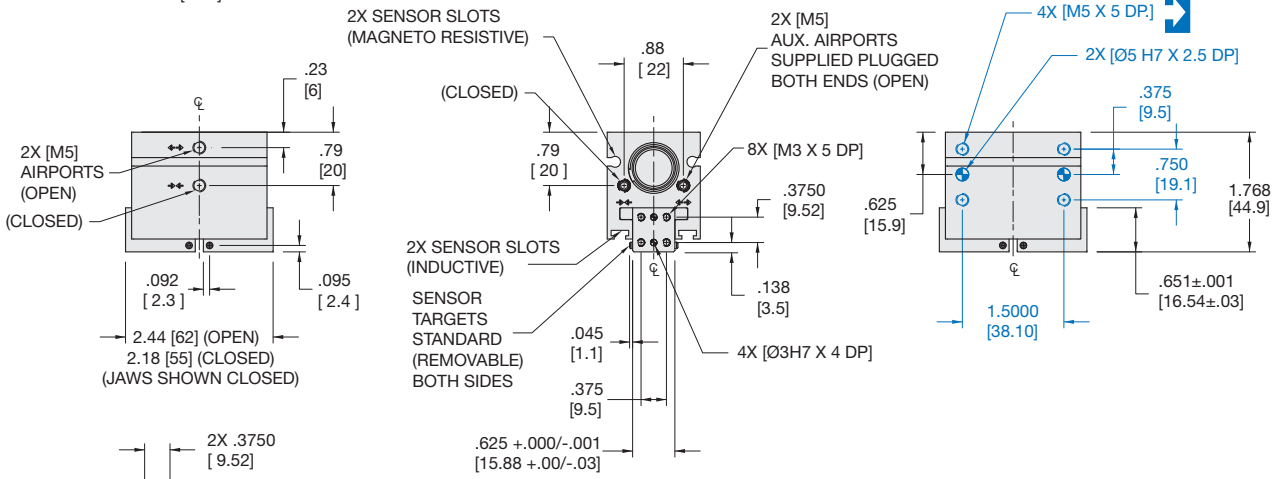
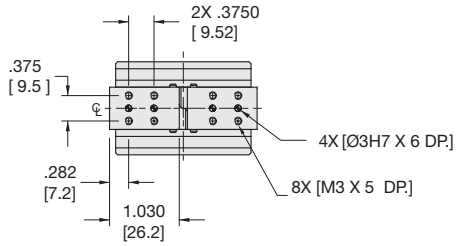








NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	**Metric [mm]** [0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SIZE | SPRING (See Below) | TOP PORTING | JAW SYNC (See Below) | VITON® SEALS

DPG-10M - 1 - [ ] - [ ] - T - V

SPRING DIRECTION
- **O** Spring Open
- **C** Spring Closed
- **__** Leave Blank. No Spring Option (standard)

JAW SYNCHRONIZATION CONFIGURATION
- **LF** Left Jaw Fixed
- **RF** Right Jaw Fixed
- **NS** Non-synchronous Jaws
- **__** Leave Blank for Synchronous (standard)

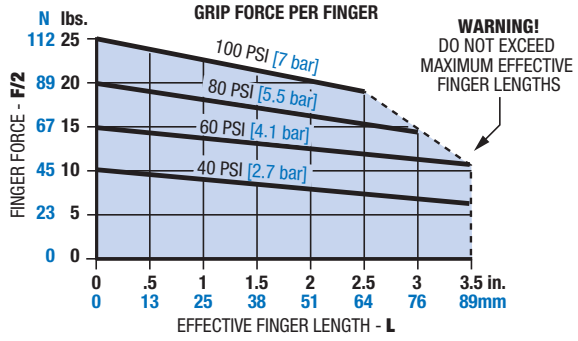
SAMPLE ORDER: DPG-10M-1-C-V
Ex: DPG-10M Gripper, Metric, Size 1, Spring Close, Viton® Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Inductive Sensor Mounting Kit (Mounts 2 Sensors)	OSMK-097	1 or 2
NPN Inductive Sensor with Qk. Disconnect*	OISN-019	1,2,3, or 4
PNP Inductive Sensor with Qk. Disconnect*	OISP-019	1,2,3, or 4
NPN Magneto Resistive Sensor (long barrel) w/Qk. Disconnect*	OHSN-017	1,2,3, or 4
PNP Magneto Resistive Sensor (long barrel) w/Qk. Disconnect*	OHSP-017	1,2,3, or 4
NPN Magneto Resistive Sensor (short barrel) w/Qk. Disconnect*	OHSN-017	1,2,3, or 4
PNP Magneto Resistive Sensor (short barrel) w/Qk. Disconnect*	OHSP-017	1,2,3, or 4
NPN Magneto Resistive Sensor (90°) w/Qk. Disconnect*	OHSN-011	1,2,3, or 4
PNP Magneto Resistive Sensor (90°) w/Qk. Disconnect*	OHSP-011	1,2,3, or 4
Quick Disconnect Cable (2 meters long)*	CABL-010	1,2,3, or 4
Quick Disconnect Cable (5 meters long)*	CABL-013	1,2,3, or 4
Quick Disconnect Cable Extension Cord (1 meter long)*	CABL-015	1,2,3, or 4
Quick Disconnect Cable Extension Cord (2 meters long)*	CABL-016	1,2,3, or 4

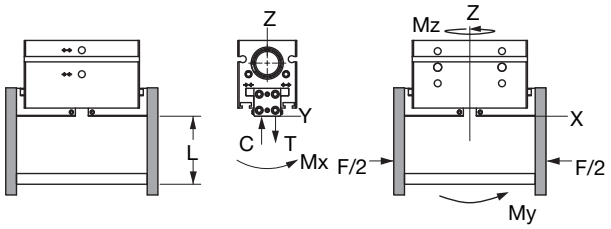
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	SLKT-183	1
Viton® Seal Repair Kit	SLKT-183V	1
-T Option Plumbing Fitting - M3 male to 3mm OD Tube Push-in Style	PLFT-021	1 or 2
-T Option Plumbing Fitting - M3 male to 2mm ID Tube Barb Style	PLFT-022	1 or 2
Fail Safe Valve - M5 (Metric)	OFSV-004	1
Adjustable Flow Control (Metric)	VLVF-008	1 or 2
Top Port Manifold Seal Kit	SLKT-184V	1

*Sensor and cable sold separately

DIRECTCONNECT™



Total Additional Grip Force	Spring Open		Spring Close	
@ Full Open	6 lbs.	26 N	9 lbs.	40 N
@ Full Close	11 lbs.	49 N	6 lbs.	26 N



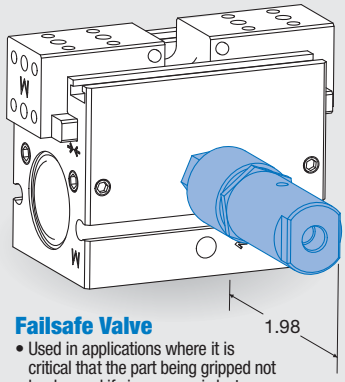
Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	175 lbs. [778 N]	20 lbs. [89 N]
Maximum Compressive **C**	400 lbs. [1779 N]	20 lbs. [89 N]
Maximum Moment **Mx**	150 in.-lbs. [17 Nm]	20 in.-lbs. [2 Nm]
Maximum Moment **My**	175 in.-lbs. [20 Nm]	30 in.-lbs. [3 Nm]
Maximum Moment **Mz**	150 in.-lbs. [17 Nm]	20 in.-lbs. [2 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPG-10M-1	
Total Rated Grip Force **F** @ 100 psi, 7 bar	50 lbs.	222 N
Stroke	0.25 in.	6.4 mm
Weight	0.39 lbs.	0.17 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	0.688 in.	17.5 mm
Displacement	0.076 in^3	1.2 cm^3

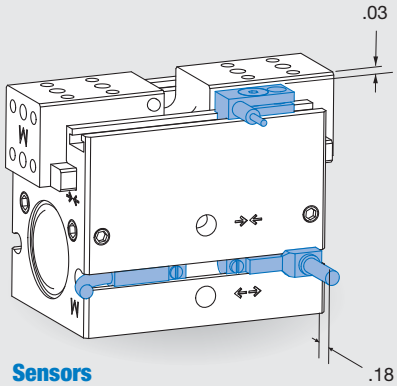
Specifications (cont.)	DPG-10M-1	
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.13 sec.	0.13 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.002 in.	±0.05 mm
Valve required to actuate	4-way, 2-position	

Accessory Mounting Technical Data



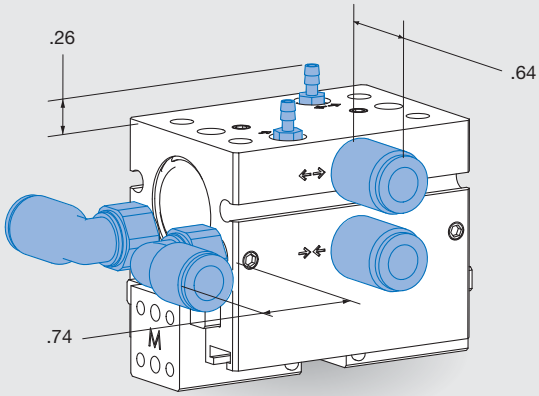
Failsafe Valve

- Used in applications where it is critical that the part being gripped not be dropped if air pressure is lost
- Mounts directly to gripper
- M5 air port



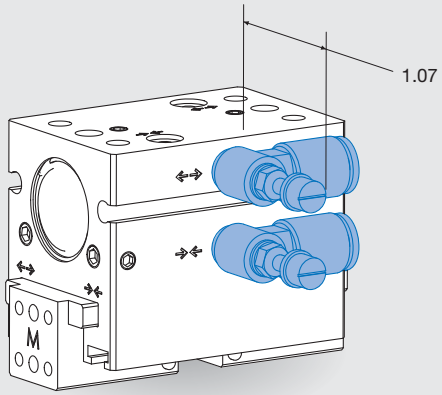
Sensors

- Choose from magneto resistive and inductive prox
- Capable of sensing 4 positions open and closed on both jaws
- PNP and NPN available
- Magneto resistive sensors are slot mounted, no mounting kits required
- Threaded quick disconnect with built-in led output
- Sensors mount on either side of gripper



Multiple Air Port Locations

- 3 standard air port locations (front and both sides)
- Optional top ports are tapped for M3 fittings
- Consult factory for plumbing fitting part numbers



Flow Controls

- Thumb screw adjust with locking nut for adjusting actuation time
- Available for 5mm OD tubing

DIRECTCONNECT™

PARALLEL GRIPPER DPG-10M-2
DIRECTCONNECT™ MODULAR SERIES

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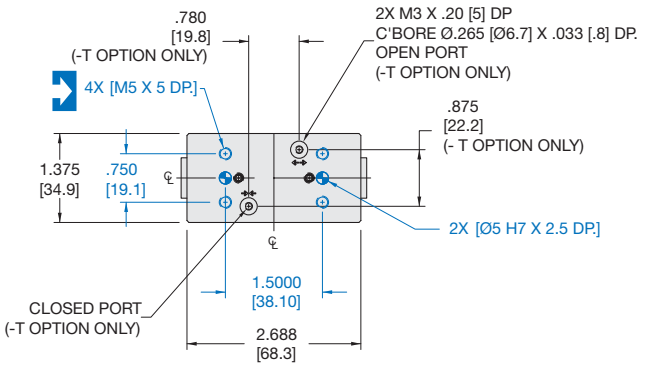

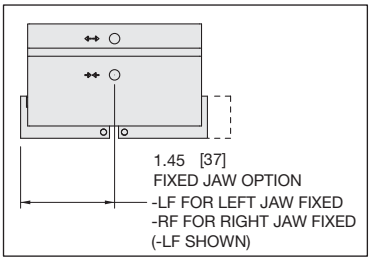

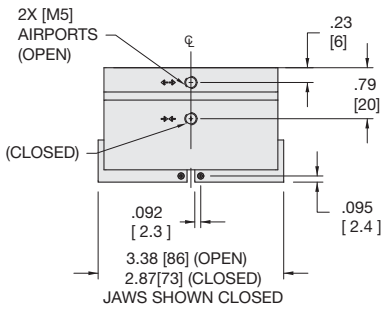

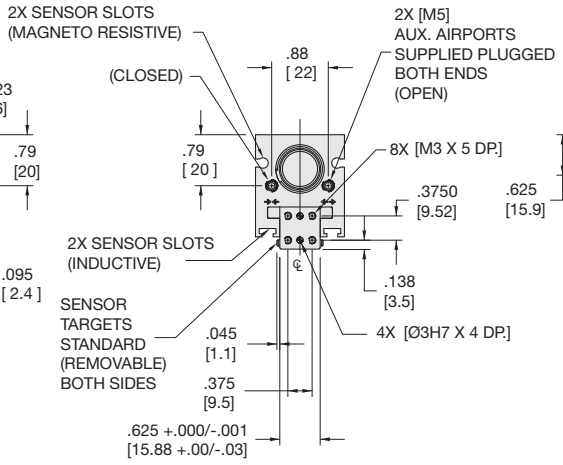

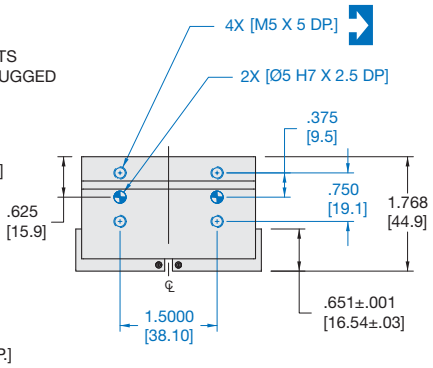

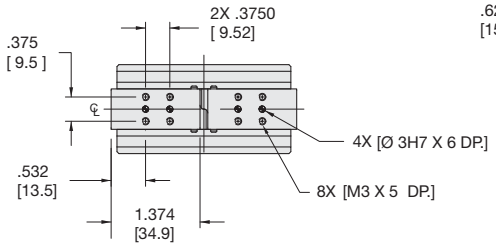

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	**Metric [mm]** [0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SIZE | SPRING (See Below) | TOP PORTING | JAW SYNC (See Below) | VITON® SEALS

DPG-10M - 2 - [ ] - [ ] - T - V

SPRING DIRECTION

O	Spring Open
C	Spring Closed
__	Leave Blank. No Spring Option (standard)

JAW SYNCHRONIZATION CONFIGURATION

LF	Left Jaw Fixed
RF	Right Jaw Fixed
NS	Non-synchronous Jaws
__	Leave Blank for Synchronous (standard)

SAMPLE ORDER: DPG-10M-2-C-LF-V

Ex: DPG-10M Gripper, Metric, Size 2, Spring Close, Left Jaw Fixed, Viton® Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Inductive Sensor Mounting Kit (Mounts 2 Sensors)	**OSMK-097**	**1 or 2**
NPN Inductive Sensor with Qk. Disconnect*	**OISN-019**	**1,2,3, or 4**
PNP Inductive Sensor with Qk. Disconnect*	**OISP-019**	**1,2,3, or 4**
NPN Magneto Resistive Sensor (long barrel) w/Qk. Disconnect*	**OHSN-017**	**1,2,3, or 4**
PNP Magneto Resistive Sensor (long barrel) w/Qk. Disconnect*	**OHSP-017**	**1,2,3, or 4**
NPN Magneto Resistive Sensor (short barrel) w/Qk. Disconnect*	**OHSN-017**	**1,2,3, or 4**
PNP Magneto Resistive Sensor (short barrel) w/Qk. Disconnect*	**OHSP-017**	**1,2,3, or 4**
NPN Magneto Resistive Sensor (90°) w/Qk. Disconnect*	**OHSN-011**	**1,2,3, or 4**
PNP Magneto Resistive Sensor (90°) w/Qk. Disconnect*	**OHSP-011**	**1,2,3, or 4**
Quick Disconnect Cable (2 meters long)*	**CABL-010**	**1,2,3, or 4**
Quick Disconnect Cable (5 meters long)*	**CABL-013**	**1,2,3, or 4**
Quick Disconnect Cable Extension Cord (1 meter long)*	**CABL-015**	**1,2,3, or 4**
Quick Disconnect Cable Extension Cord (2 meters long)*	**CABL-016**	**1,2,3, or 4**

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-183**	**1**
Viton® Seal Repair Kit	**SLKT-183V**	**1**
-T Option Plumbing Fitting - M3 male to 3mm OD Tube Push-in Style	**PLFT-021**	**1 or 2**
-T Option Plumbing Fitting - M3 male to 2mm ID Tube Barb Style	**PLFT-022**	**1 or 2**
Fail Safe Valve - M5 (Metric)	**OFSV-004**	**1**
Adjustable Flow Control (Metric)	**VLVF-008**	**1 or 2**
Top Port Manifold Seal Kit	**SLKT-184V**	**1**

*Sensor and cable sold separately

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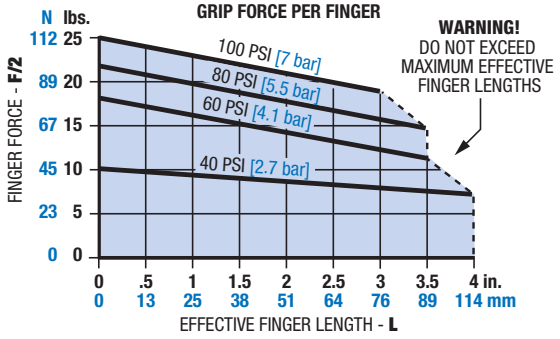
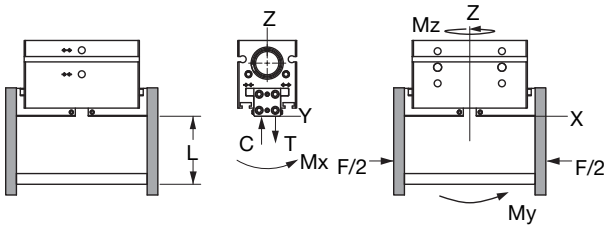


Total Additional Grip Force	Spring Open		Spring Close	
@ Full Open	6 lbs.	26 N	14 lbs.	62 N
@ Full Close	15 lbs.	66 N	6 lbs.	26 N



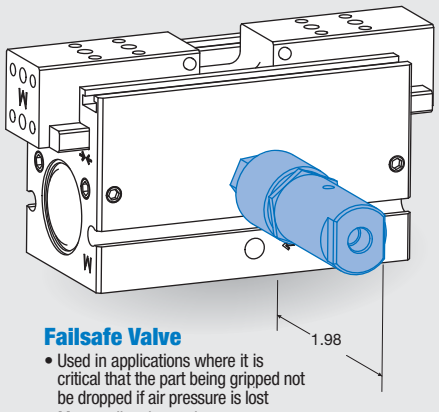
Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	200 lbs. [890 N]	25 lbs. [111 N]
Maximum Compressive **C**	425 lbs. [1890 N]	25 lbs. [111 N]
Maximum Moment **Mx**	175 in.-lbs. [20 Nm]	25 in.-lbs. [3 Nm]
Maximum Moment **My**	200 in.-lbs. [23 Nm]	35 in.-lbs. [4 Nm]
Maximum Moment **Mz**	175 in.-lbs. [20 Nm]	25 in.-lbs. [3 Nm]

†Capacities are per set of jaws and are not simultaneous

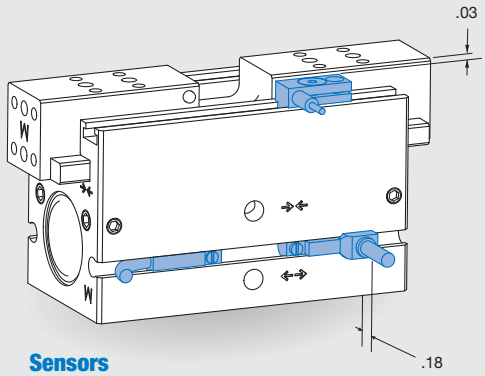
Specifications	DPG-10M-2	
Total Rated Grip Force **F** @ 100 psi, 7 bar	50 lbs.	222 N
Stroke	0.50 in.	12.7 mm
Weight	0.53 lbs.	0.24 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	0.688 in.	17.5 mm
Displacement	0.153 in^3	2.5 cm^3

Specifications (cont.)	DPG-10M-2	
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.19 sec.	0.19 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.002 in.	±0.05 mm
Valve required to actuate	4-way, 2-position	

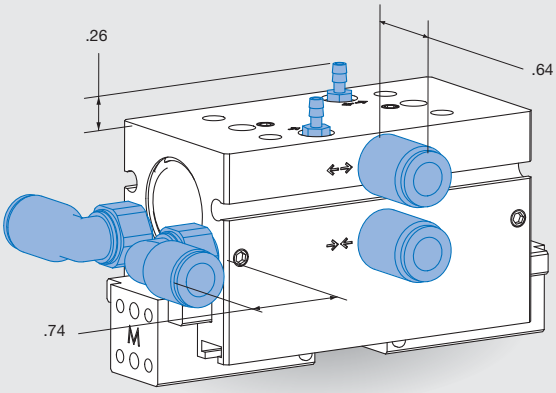
Accessory Mounting Technical Data



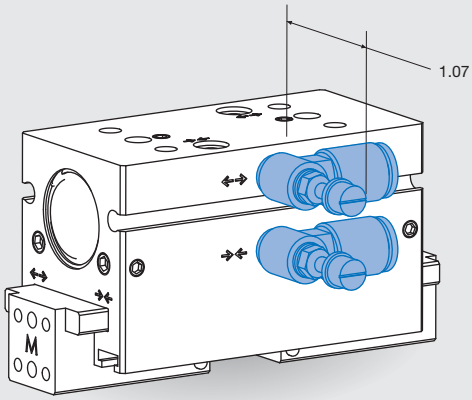
Failsafe Valve
- Used in applications where it is critical that the part being gripped not be dropped if air pressure is lost
- Mounts directly to gripper
- M5 air port



Sensors
- Choose from magneto resistive and inductive prox
- Capable of sensing 4 positions open and closed on both jaws
- PNP and NPN available
- Magneto resistive sensors are slot mounted, no mounting kits required
- Threaded quick disconnect with built-in led output
- Sensors mount on either side of gripper



Multiple Air Port Locations
- 3 standard air port locations (front and both sides)
- Optional top ports are tapped for M3 fittings
- Consult factory for plumbing fitting part numbers



Flow Controls
- Thumb screw adjust with locking nut for adjusting actuation time
- Available for 5mm OD tubing

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PARALLEL GRIPPER DPG-10M-3
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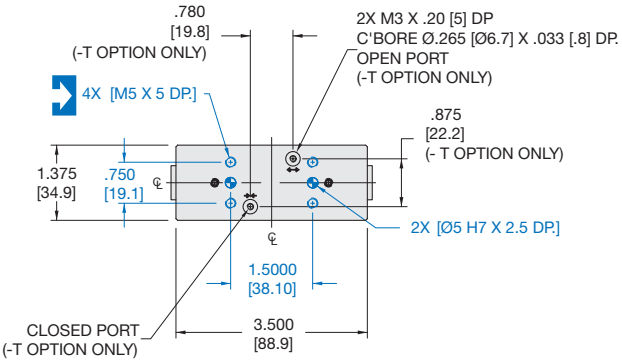

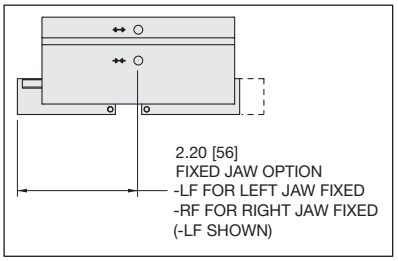

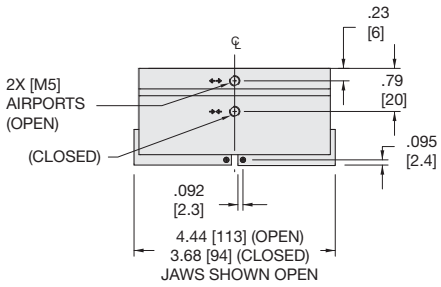

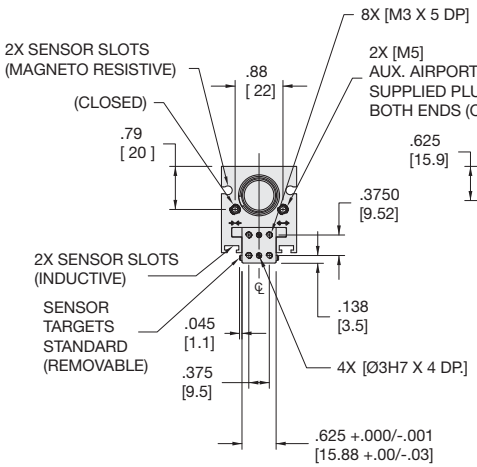

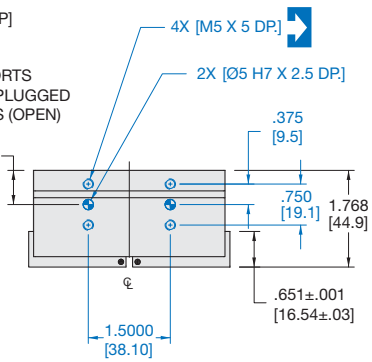

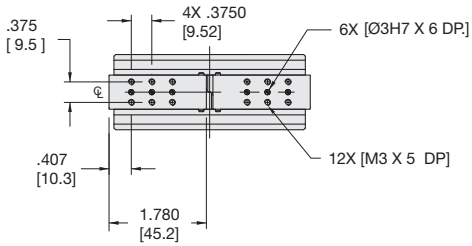

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL	SIZE	SPRING (See Below)		TOP PORTING	
DPG-10M	- 3	- [ ]	- [ ]	- T	- V

JAW SYNC (See Below) | VITON® SEALS

SPRING DIRECTION

O	Spring Open
C	Spring Closed
__	Leave Blank. No Spring Option (standard)

JAW SYNCHRONIZATION CONFIGURATION

LF	Left Jaw Fixed
RF	Right Jaw Fixed
NS	Non-Synchronous Jaws
__	Leave Blank for Synchronous (standard)

SAMPLE ORDER: DPG-10M-3-C-RF-V

Ex: DPG-10M Gripper, Metric, Size 3, Spring Close, Right Jaw Fixed, Viton® Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Inductive Sensor Mounting Kit (Mounts 2 Sensors)	OSMK-097	1 or 2
NPN Inductive Sensor with Qk. Disconnect*	OISN-019	1,2,3, or 4
PNP Inductive Sensor with Qk. Disconnect*	OISP-019	1,2,3, or 4
NPN Magneto Resistive Sensor (long barrel) w/Qk. Disconnect*	OHSN-017	1,2,3, or 4
PNP Magneto Resistive Sensor (long barrel) w/Qk. Disconnect*	OHSP-017	1,2,3, or 4
NPN Magneto Resistive Sensor (short barrel) w/Qk. Disconnect*	OHSN-017	1,2,3, or 4
PNP Magneto Resistive Sensor (short barrel) w/Qk. Disconnect*	OHSP-017	1,2,3, or 4
NPN Magneto Resistive Sensor (90°) w/Qk. Disconnect*	OHSN-011	1,2,3, or 4
PNP Magneto Resistive Sensor (90°) w/Qk. Disconnect*	OHSP-011	1,2,3, or 4
Quick Disconnect Cable (2 meters long)*	CABL-010	1,2,3, or 4
Quick Disconnect Cable (5 meters long)*	CABL-013	1,2,3, or 4
Quick Disconnect Cable Extension Cord (1 meter long)*	CABL-015	1,2,3, or 4
Quick Disconnect Cable Extension Cord (2 meters long)*	CABL-016	1,2,3, or 4

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	SLKT-183	1
Viton® Seal Repair Kit	SLKT-183V	1
-T Option Plumbing Fitting - M3 male to 3mm OD Tube Push-in Style	PLFT-021	1 or 2
-T Option Plumbing Fitting - M3 male to 2mm ID Tube Barb Style	PLFT-022	1 or 2
Fail Safe Valve - M5 (Metric)	OFSV-004	1
Adjustable Flow Control (Metric)	VLVF-008	1 or 2
Top Port Manifold Seal Kit	SLKT-184V	1

*Sensor and cable sold separately

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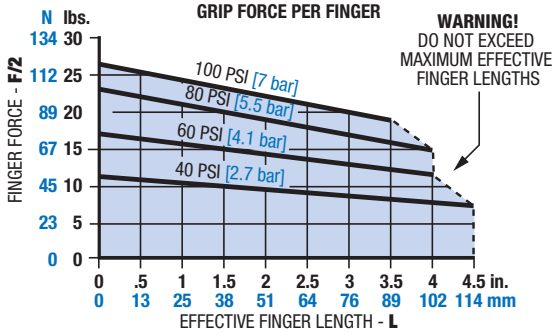
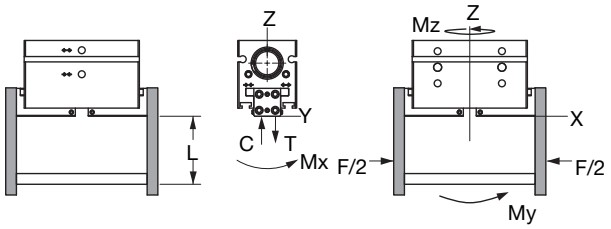


Total Additional Grip Force	Spring Open		Spring Close	
@ Full Open	6 lbs.	26 N	15 lbs.	66 N
@ Full Close	23 lbs.	102 N	6 lbs.	26 N



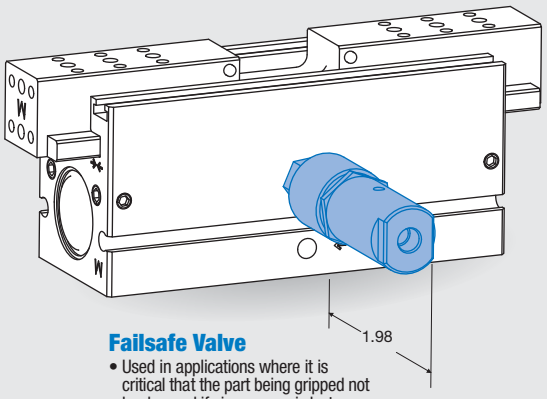
Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	225 lbs. [1001 N]	30 lbs. [133 N]
Maximum Compressive **C**	450 lbs. [2002 N]	30 lbs. [133 N]
Maximum Moment **Mx**	200 in.-lbs. [23 Nm]	30 in.-lbs. [3 Nm]
Maximum Moment **My**	225 in.-lbs. [25 Nm]	40 in.-lbs. [5 Nm]
Maximum Moment **Mz**	200 in.-lbs. [23 Nm]	30 in.-lbs. [3 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPG-10M-3	
Total Rated Grip Force **F** @ 100 psi, 7 bar	50 lbs.	222 N
Stroke	0.75 in.	19.1 mm
Weight	0.68 lbs.	0.30 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	0.688 in.	17.5 mm
Displacement	0.230 in^3	3.8 cm^3

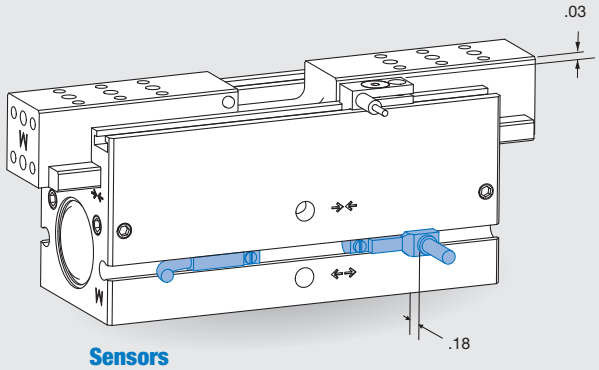
Specifications (cont.)	DPG-10M-3	
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.29 sec.	0.29 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.002 in.	±0.05 mm
Valve required to actuate	4-way, 2-position	

Accessory Mounting Technical Data



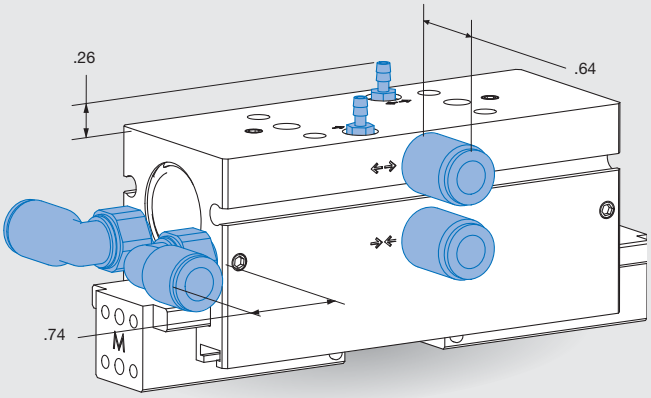
Failsafe Valve

- Used in applications where it is critical that the part being gripped not be dropped if air pressure is lost
- Mounts directly to gripper
- M5 air port



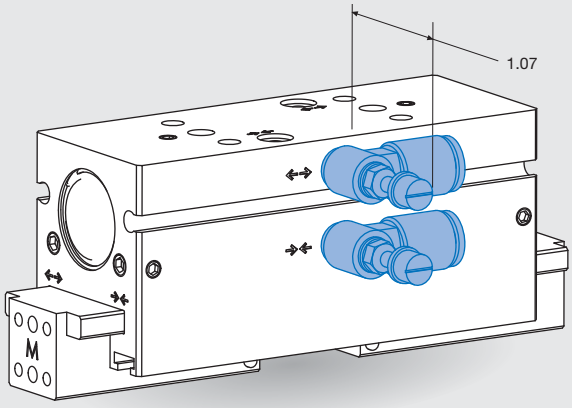
Sensors

- Choose from magneto resistive and inductive prox
- Capable of sensing 4 positions open and closed on both jaws
- PNP and NPN available
- Magneto resistive sensors are slot mounted, no mounting kits required
- Threaded quick disconnect with built-in led output
- Sensors mount on either side of gripper



Multiple Air Port Locations

- 3 standard air port locations (front and both sides)
- Optional top ports are tapped for M3 fittings
- Consult factory for plumbing fitting part numbers



Flow Controls

- Thumb screw adjust with locking nut for adjusting actuation time
- Available for 5mm OD tubing

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PARALLEL GRIPPER DPG-10M-4
DIRECTCONNECT™ MODULAR SERIES

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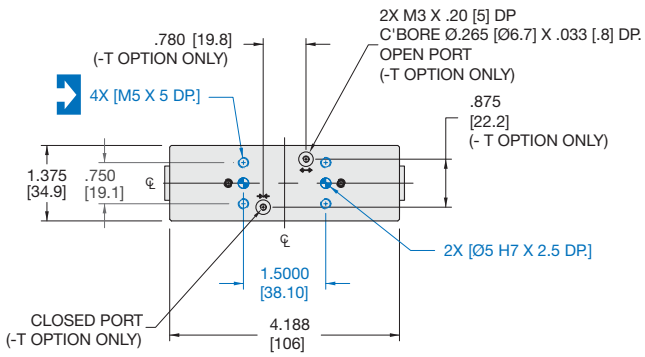

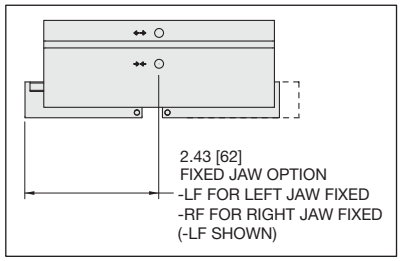

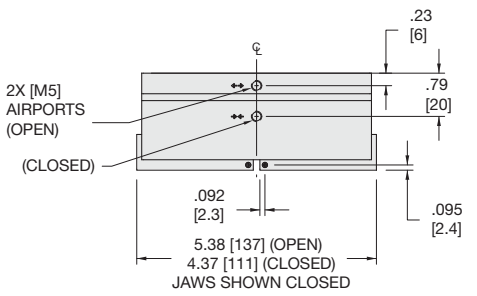

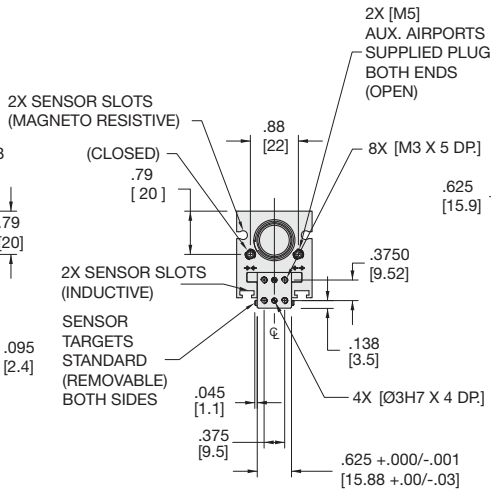

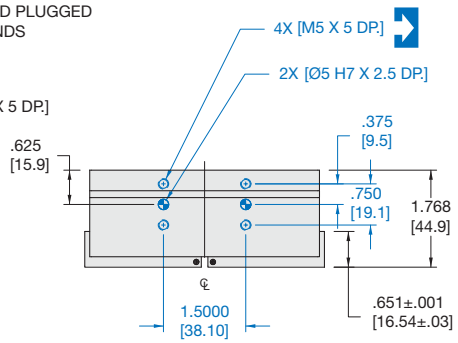

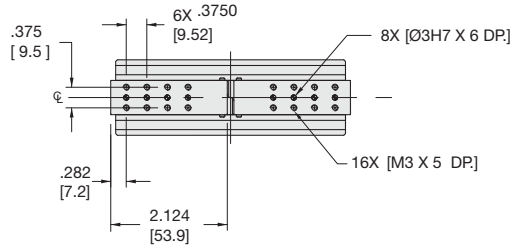

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	**Metric [mm]** [0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL **DPG-10M** - SIZE **4** - SPRING (See Below) **[ ]** - **[ ]** - TOP PORTING **T** - VITON® SEALS **V**

JAW SYNC (See Below)

SPRING DIRECTION

O	Spring Open
C	Spring Closed
__	Leave Blank. No Spring Option (standard)

JAW SYNCHRONIZATION CONFIGURATION

LF	Left Jaw Fixed
RF	Right Jaw Fixed
NS	Non-Synchronous Jaws
__	Leave Blank for Synchronous (standard)

SAMPLE ORDER: DPG-10M-4-O-NS-V

Ex: DPG-10M Gripper, Metric, Size 4, Spring Open, Non-Synchronous Jaws, Viton® Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Inductive Sensor Mounting Kit (Mounts 2 Sensors)	**OSMK-097**	**1 or 2**
NPN Inductive Sensor with Qk. Disconnect*	**OISN-019**	**1,2,3, or 4**
PNP Inductive Sensor with Qk. Disconnect*	**OISP-019**	**1,2,3, or 4**
NPN Magneto Resistive Sensor (long barrel) w/Qk. Disconnect*	**OHSN-017**	**1,2,3, or 4**
PNP Magneto Resistive Sensor (long barrel) w/Qk. Disconnect*	**OHSP-017**	**1,2,3, or 4**
NPN Magneto Resistive Sensor (short barrel) w/Qk. Disconnect*	**OHSN-017**	**1,2,3, or 4**
PNP Magneto Resistive Sensor (short barrel) w/Qk. Disconnect*	**OHSP-017**	**1,2,3, or 4**
NPN Magneto Resistive Sensor (90°) w/Qk. Disconnect*	**OHSN-011**	**1,2,3, or 4**
PNP Magneto Resistive Sensor (90°) w/Qk. Disconnect*	**OHSP-011**	**1,2,3, or 4**
Quick Disconnect Cable (2 meters long)*	**CABL-010**	**1,2,3, or 4**
Quick Disconnect Cable (5 meters long)*	**CABL-013**	**1,2,3, or 4**
Quick Disconnect Cable Extension Cord (1 meter long)*	**CABL-015**	**1,2,3, or 4**
Quick Disconnect Cable Extension Cord (2 meters long)*	**CABL-016**	**1,2,3, or 4**

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-183**	**1**
Viton® Seal Repair Kit	**SLKT-183V**	**1**
-T Option Plumbing Fitting - M3 male to 3mm OD Tube Push-in Style	**PLFT-021**	**1 or 2**
-T Option Plumbing Fitting - M3 male to 2mm ID Tube Barb Style	**PLFT-022**	**1 or 2**
Fail Safe Valve - M5 (Metric)	**OFSV-004**	**1**
Adjustable Flow Control (Metric)	**VLVF-008**	**1 or 2**
Top Port Manifold Seal Kit	**SLKT-184V**	**1**

*Sensor and cable sold separately

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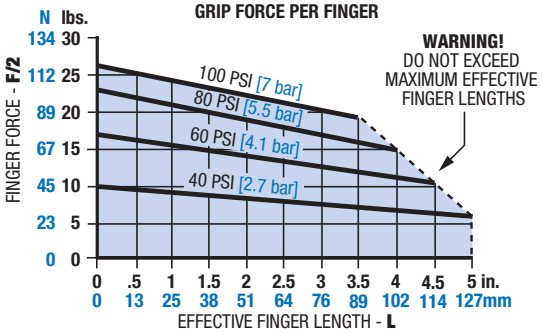
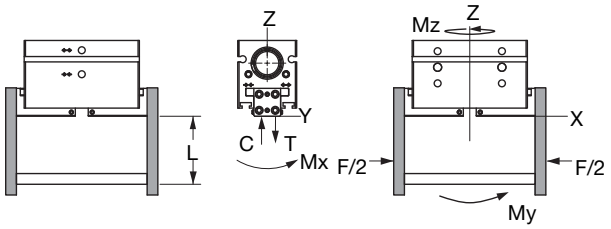


Total Additional Grip Force	Spring Open		Spring Close	
@ Full Open	6 lbs.	26 N	15 lbs.	66 N
@ Full Close	22 lbs.	97 N	6 lbs.	26 N



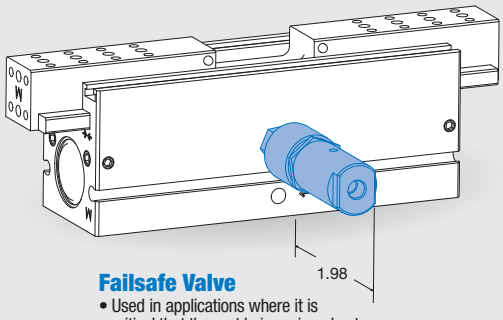
Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	250 lbs. [1112 N]	35 lbs. [156 N]
Maximum Compressive **C**	475 lbs. [2113 N]	35 lbs. [156 N]
Maximum Moment **Mx**	225 in.-lbs. [25 Nm]	35 in.-lbs. [4 Nm]
Maximum Moment **My**	250 in.-lbs. [28 Nm]	45 in.-lbs. [5 Nm]
Maximum Moment **Mz**	225 in.-lbs. [25 Nm]	35 in.-lbs. [4 Nm]

†Capacities are per set of jaws and are not simultaneous

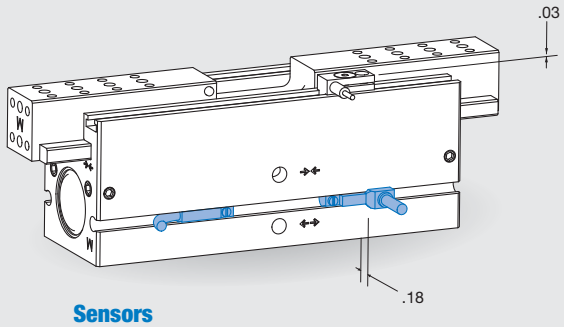
Specifications	DPG-10M-4	
Total Rated Grip Force **F** @ 100 psi, 7 bar	50 lbs.	222 N
Stroke	1.00 in.	25.4 mm
Weight	0.81 lbs.	0.36 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	0.688 in.	17.5 mm
Displacement	0.306 in^3.	5.0 cm^3

Specifications	DPG-10M-4	
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.40 sec.	0.40 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.002 in.	±0.05 mm
Valve required to actuate	4-way, 2-position	

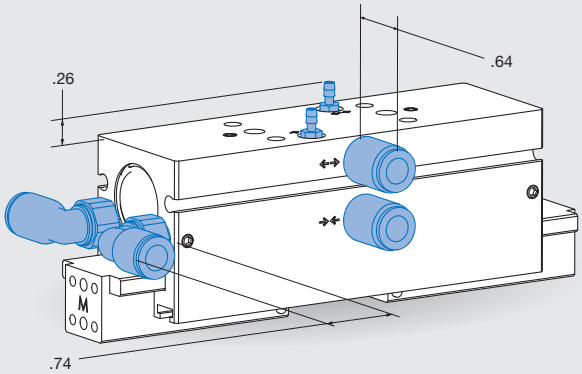
Accessory Mounting Technical Data



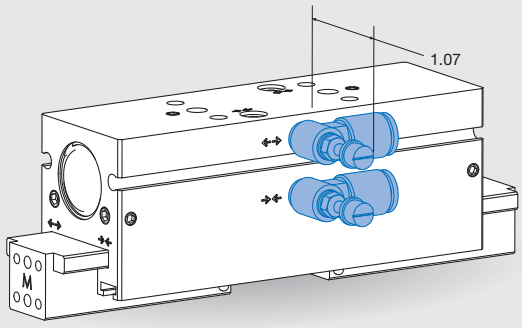
Failsafe Valve
- Used in applications where it is critical that the part being gripped not be dropped if air pressure is lost
- Mounts directly to gripper
- M5 air port



Sensors
- Choose from magneto resistive and inductive prox
- Capable of sensing 4 positions open and closed on both jaws
- PNP and NPN available
- Magneto resistive sensors are slot mounted, no mounting kits required
- Threaded quick disconnect with built-in led output
- Sensors mount on either side of gripper



Multiple Air Port Locations
- 3 standard air port locations (front and both sides)
- Optional top ports are tapped for M3 fittings
- Consult factory for plumbing fitting part numbers



Flow Controls
- Thumb screw adjust with locking nut for adjusting actuation time
- Available for 5mm OD tubing

DIRECTCONNECT™

DPG SERIES EXPLODED VIEW

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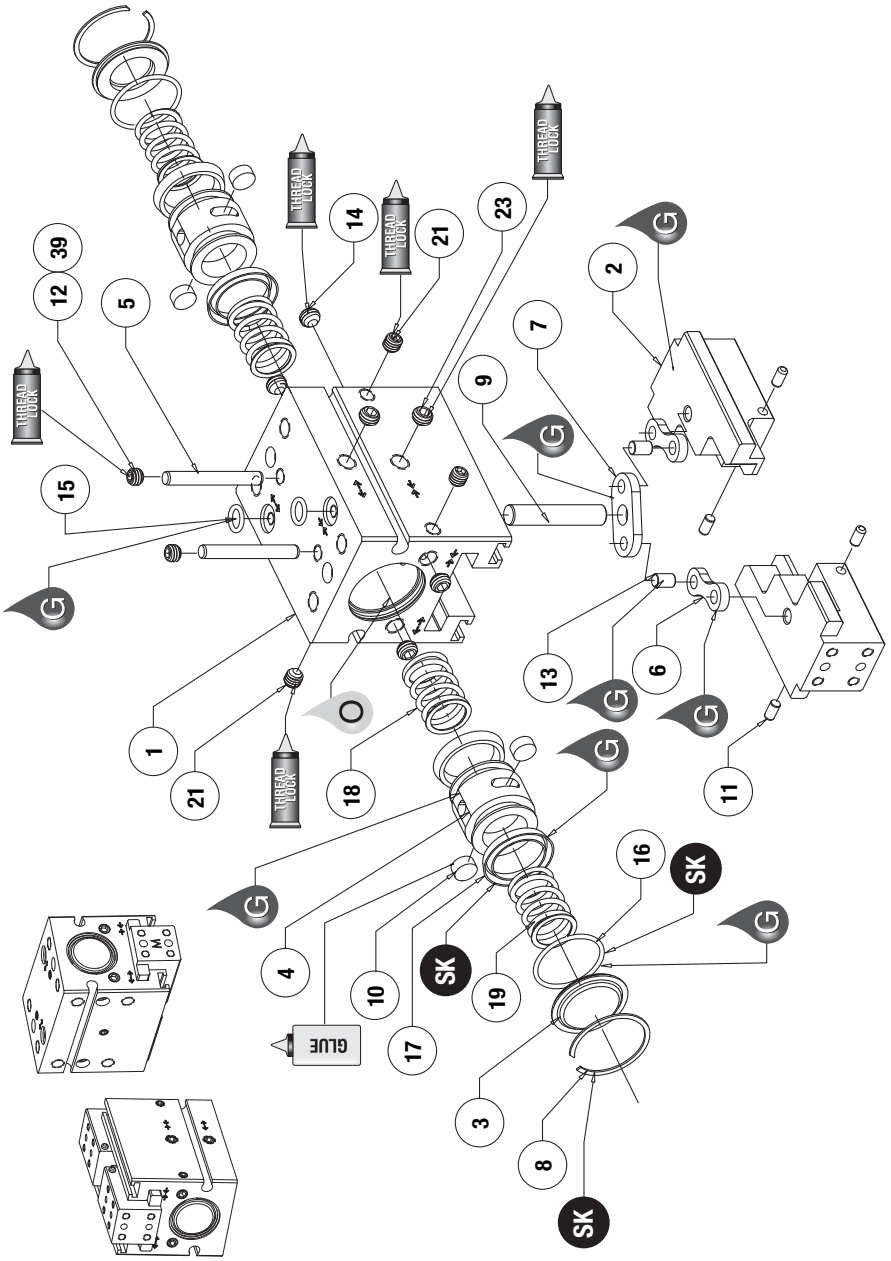


Item	Qty	Name
01	1	Body
02	2	Jaw
03	2	Cap
04	2	Piston
05	2	Drive Pin
06	2	Synchronizing Bar
07	1	Equalizer
08	2	Retaining Ring
09	1	Pivot Pin
10	4	Magnet
11	4	Targets for Inductive Sensors
12	2	Set Screw - Drive Pin Access Plug
13	2	Equalizer/Synchronizing Bar pivot pin
14	4	Set Screw - End Port Plugs
15	2	O-ring - Top Porting Manifold Seals (-T option)
16	2	O-ring - Cap Seals
17	4	U-cup - Piston Seals
18	2	Springs for "-O" Spring-Open Option
19	2	Springs for "-C" Spring-Closed Option
21	3	Set Screw - Internal Porting Plugs
23	2	Set Screw - Side Porting Plugs (-T option)
39	1	Set Screw - Plug (-LF and -RF options only)

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

SK Seal Repair Kit Order #'s See Product Data Sheets

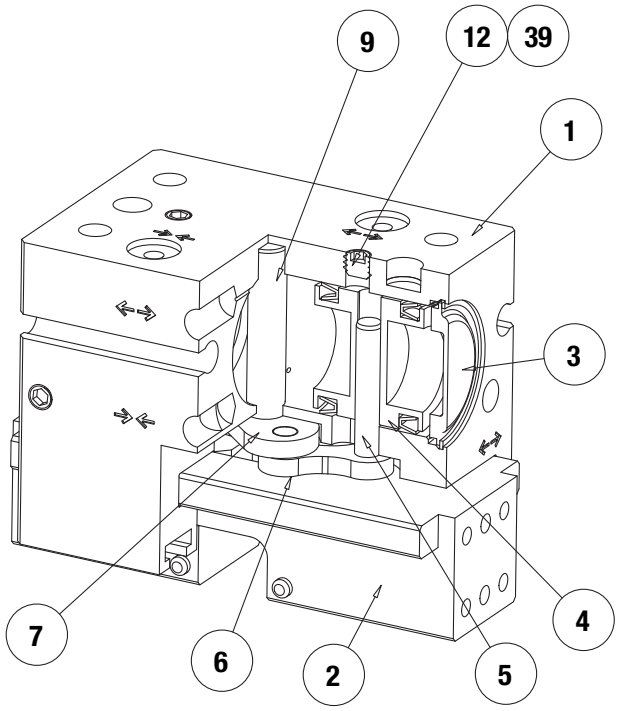
Assembly Procedure

1) Lubricate body.
2) Plug cross ports in body.
3) Press pivot pin into body.
4) Insert magnets into pistons making sure magnets attract to each other.
5) Lubricate and install seals onto pistons.
6) Insert pistons into body aligning drive pin hole in pistons with the drive pin hole in the body.
7) Press pins into equalizer.
8) Assemble equalizer with synchronizing bars and place onto pivot pin in body making sure holes in synchronizing bars line up with holes in pistons.
9) From top body mounting surface insert drive pins through the pistons and into the synchronizing bars making sure not to go through the synchronizing bars.
10) Place jaws into body aligning the drive pins with the hole in the jaws.
11) Press drive pins into jaws.
12) Install drive pin plugs into body.
13) Place seals onto caps and install with retaining rings.

Non-Synchronous Procedure

1) Remove drive pin plugs.
2) Press drive pins out of body from jaw side.
3) Remove jaws from body.
4) Remove equalizer and synchronizing bars from body.
5) Re-install jaws into body aligning the drive pin with the hole in the jaws
6) Press drive pins into jaws.
7) Re-install drive pin plugs into body.

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX™ Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon™ Based Grease | GLUE Super Bonder | Third Angle Projection



Item	Qty	Name
01	1	Body
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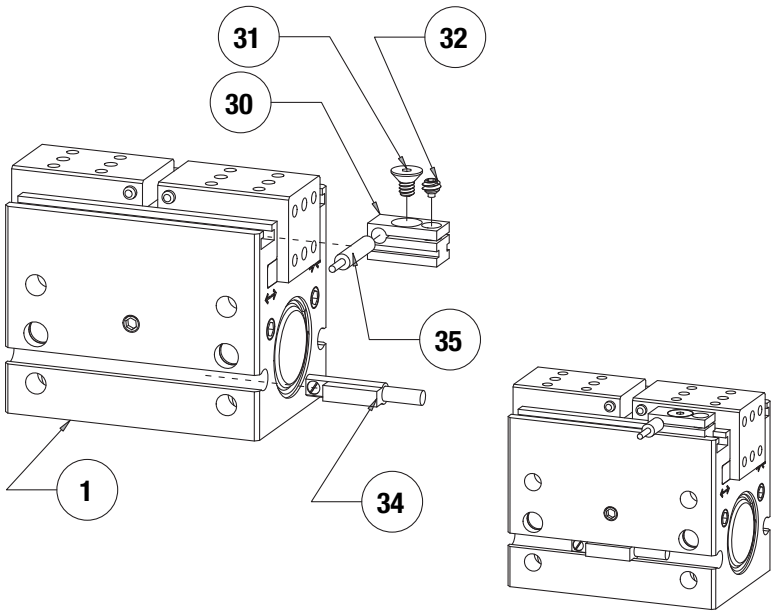
04	2	Piston
05	2	Drive Pin
06	2	Synchronizing Bar
07	1	Equalizer
09	1	Pivot Pin
12	2	Set Screw - Drive Pin Access Plug
39	1	Set Screw - Plug (-LF and -RF options only)

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Accessory Installation & Adjustment Instructions



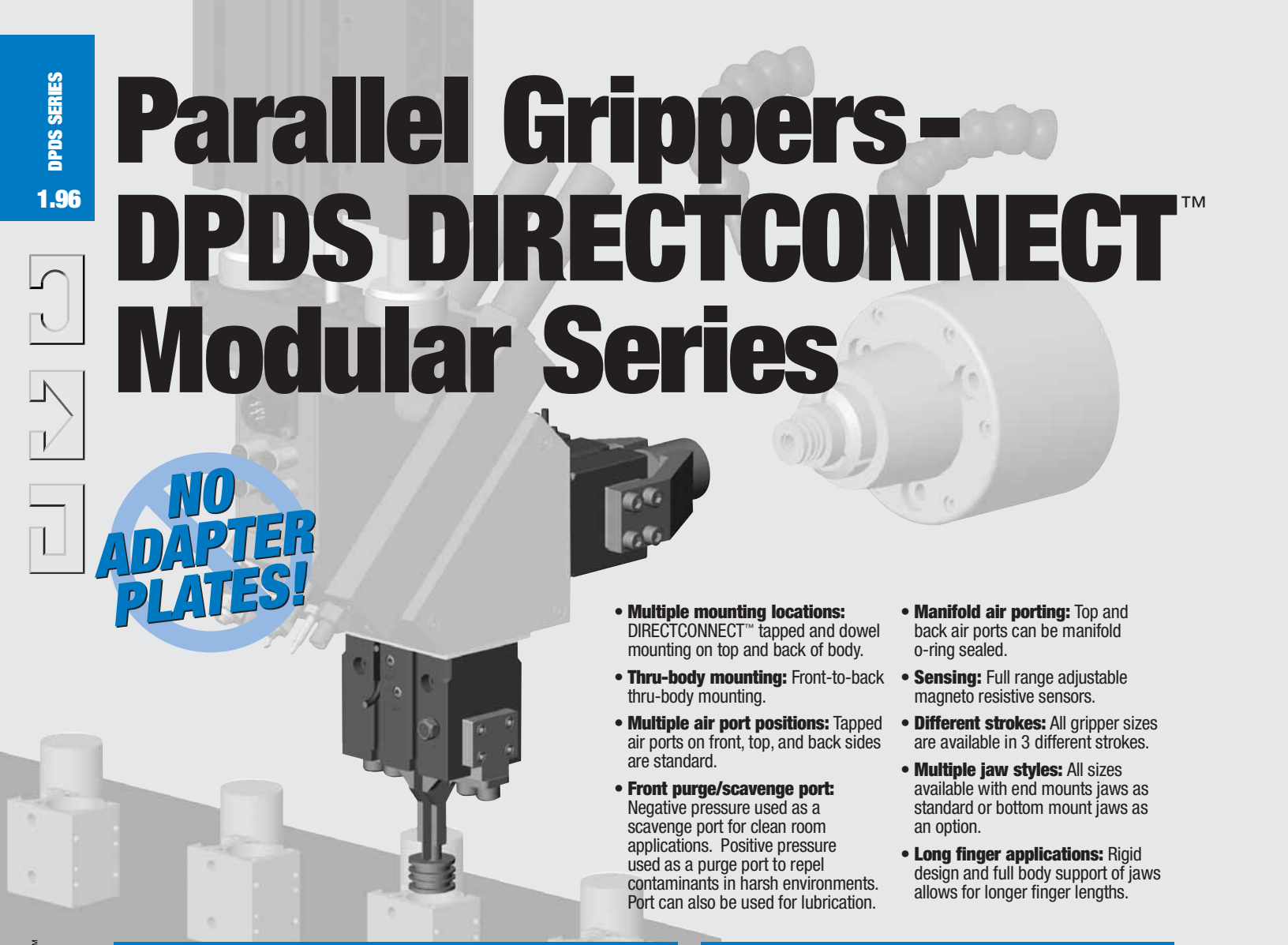
Installation:

Magneto Resistive Sensors
1) Install sensors in profile slots of gripper body as shown.
2) Set sensors with integrated screw.

Inductive Sensors
1) Insert sensor bracket into slot of body.
2) Insert sensor into bracket and adjust sensor depth so that sensor light indicates on target.
3) Tighten sensor locking screw (#31) to hold sensor depth.
4) Position sensor bracket for desired stroke detection.
5) Tighten sensor bracket with setscrew (#32) to lock stroke detection position.

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon™ Based Grease | GLUE Super Bonder | Third Angle Projection

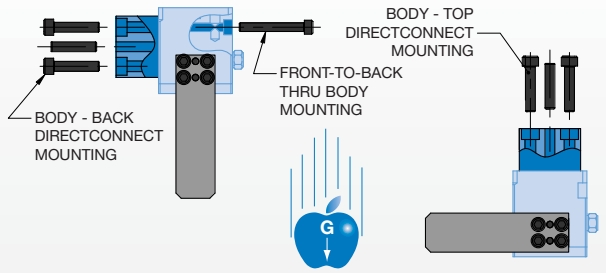
Parallel Grippers - DPDS DIRECTCONNECT™ Modular Series



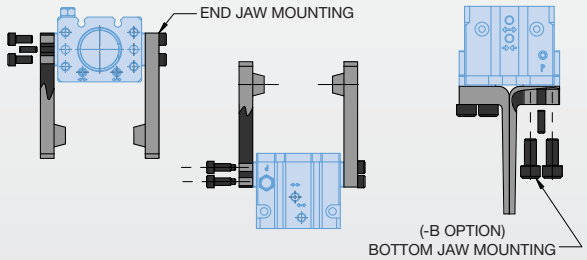
- **Multiple mounting locations:** DIRECTCONNECT™ tapped and dowel mounting on top and back of body.
- **Thru-body mounting:** Front-to-back thru-body mounting.
- **Multiple air port positions:** Tapped air ports on front, top, and back sides are standard.
- **Front purge/scavenge port:** Negative pressure used as a scavenge port for clean room applications. Positive pressure used as a purge port to repel contaminants in harsh environments. Port can also be used for lubrication.
- **Manifold air porting:** Top and back air ports can be manifold o-ring sealed.
- **Sensing:** Full range adjustable magneto resistive sensors.
- **Different strokes:** All gripper sizes are available in 3 different strokes.
- **Multiple jaw styles:** All sizes available with end mounts jaws as standard or bottom mount jaws as an option.
- **Long finger applications:** Rigid design and full body support of jaws allows for longer finger lengths.

Mounting Information:

Grippers can be mounted & operated in any orientation



Body mounts with screws and locates with slip fit dowel pins for accuracy



Fingers attach with screws and locate on jaws by keying and/or dowel pins. Fingers can be mounted in any orientation with respect to the jaw.

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**20-100 psi**	**1.5-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~300° F**	**-30°~150° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

Application Restrictions
Applications where mechanism lubricant could cause contamination (use DPDL gripper with **-E** sealed jaw option)

*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features

Hard Coat Anodize
The body and bottom plate have hard-coat anodize 60RC with Teflon® impregnation

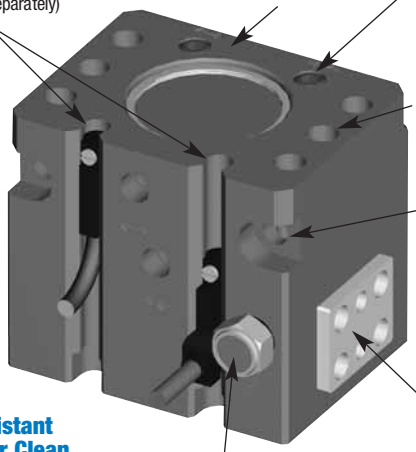
High Temperature
Optional Viton® seals are available for high temperature applications

Multiple Air Port Locations
3 standard airport locations (front, back, & top)

Sensor Mounting Slots
Standard mounting slots for magneto resistive (sensors sold separately)

One Piece Body
One piece lightweight aircraft quality aluminum body

Manifold Air Ports
Back & top air ports can be O-ring manifold sealed to eliminate air lines



Dowel Holes
Slip fit dowel pin holes in body and jaws

DIRECTCONNECT Mounting Patterns
DIRECTCONNECT™ tapped & dowel mounting surfaces on top and back of body

Thru-Body Mounting
Front-to-back thru C'bores for socket head cap screw mounting

Extremely Rugged Design
Jaws are supported throughout the length of the body

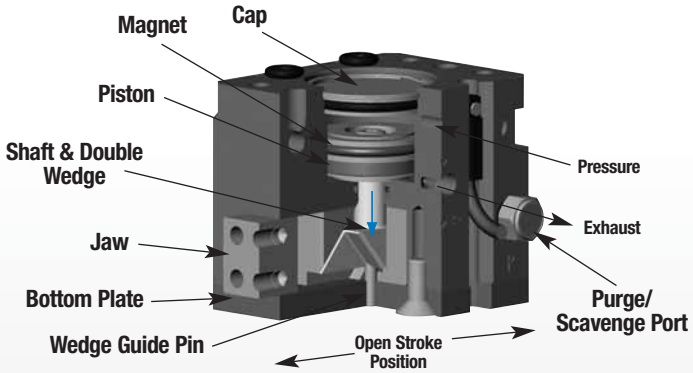
Bottom Jaw Mounting (-B) Option
For alternate finger mounting (standard side mount jaws shown)

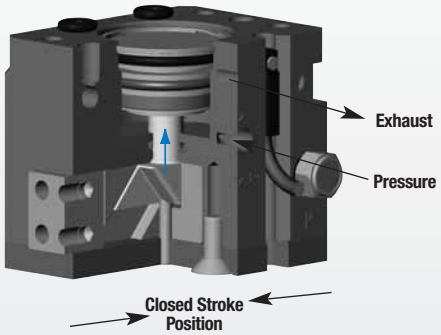
Corrosion Resistant Hardware (-S) or Clean Room (-CR) Options
Both options have stainless and brass hardware. Clean room option uses clean room grade greases

Purge/Scavenge Port
Used with a vacuum for clean room environments or positive pressure with harsh environments

Jaw Components
Hardened and precision ground steel for minimum jaw play with hard plating for wear resistance and long life

Operating Principle





- A double acting piston is connected by a shaft to a double-sided wedge.
- The wedge slides in a slot located in each of the jaws converting vertical motion of the wedge into horizontal synchronous motion of the ja ws.
- The large surface area of the wedge minimizes friction wear.
- This gripper is suitable for internal or external gripping and can be mounted in any orientation.

U.S. Patent # 5,125,708
Designed and manufactured in the USA

Style -DPDS Parallel Gripper

Size -047M

Style:	DPDS-047M	
Stroke:	0.13 in.	3.2 mm
Grip Force:	14 lbs.	62 N
Weight:	0.086 lbs.	0.04 Kg

-B Bottom Jaw Mount Shown

See Page 1.98

Style -DPDS Parallel Gripper

Size -056M

Style:	DPDS-056M	
Stroke:	0.19 in.	4.8 mm
Grip Force:	22 lbs.	98 N
Weight:	0.155 lbs.	0.07 Kg

-B Bottom Jaw Mount Shown

See Page 1.100

Style -DPDS Parallel Gripper

Size -088M

Style:	DPDS-088M	
Stroke:	0.25 in.	6.4 mm
Grip Force:	50 lbs.	222 N
Weight:	0.51 lbs.	0.23 Kg

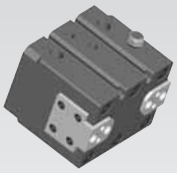
-B Bottom Jaw Mount Shown

See Page 1.102

Style -DPDS Parallel Gripper

Size -125M

Style:	DPDS-125M	
Stroke:	0.38 in.	9.5 mm
Grip Force:	100 lbs.	445 N
Weight:	1.03 lbs.	0.46 Kg



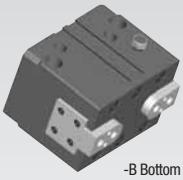
-B Bottom Jaw Mount Shown

See Page 1.104

Style -DPDS Parallel Gripper

Size -175M

Style:	DPDS-175M	
Stroke:	0.50 in.	12.7 mm
Grip Force:	200 lbs.	890 N
Weight:	3.70 lbs.	1.68 Kg



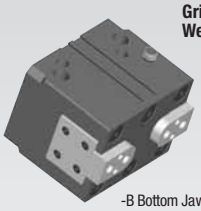
-B Bottom Jaw Mount Shown

See Page 1.106

Style -DPDS Parallel Gripper

Size -250M

Style:	DPDS-250M	
Stroke:	0.75 in.	19.1 mm
Grip Force:	400 lbs.	1779 N
Weight:	6.08 lbs.	2.76 Kg



-B Bottom Jaw Mount Shown

See Page 1.108

PARALLEL GRIPPER DPDS-047M
DIRECTCONNECT™ MODULAR SERIES

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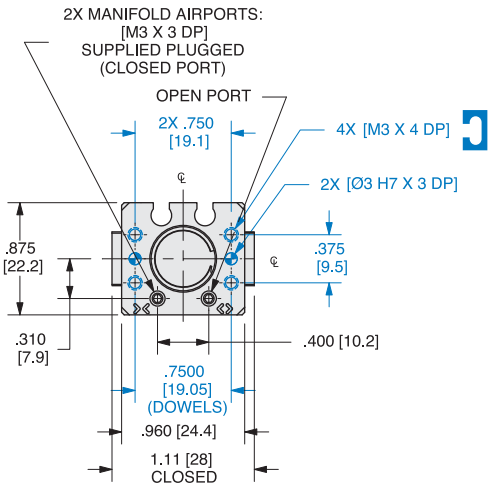
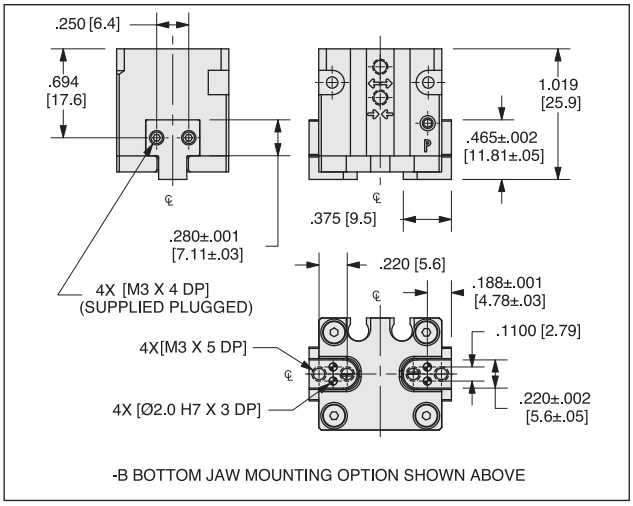
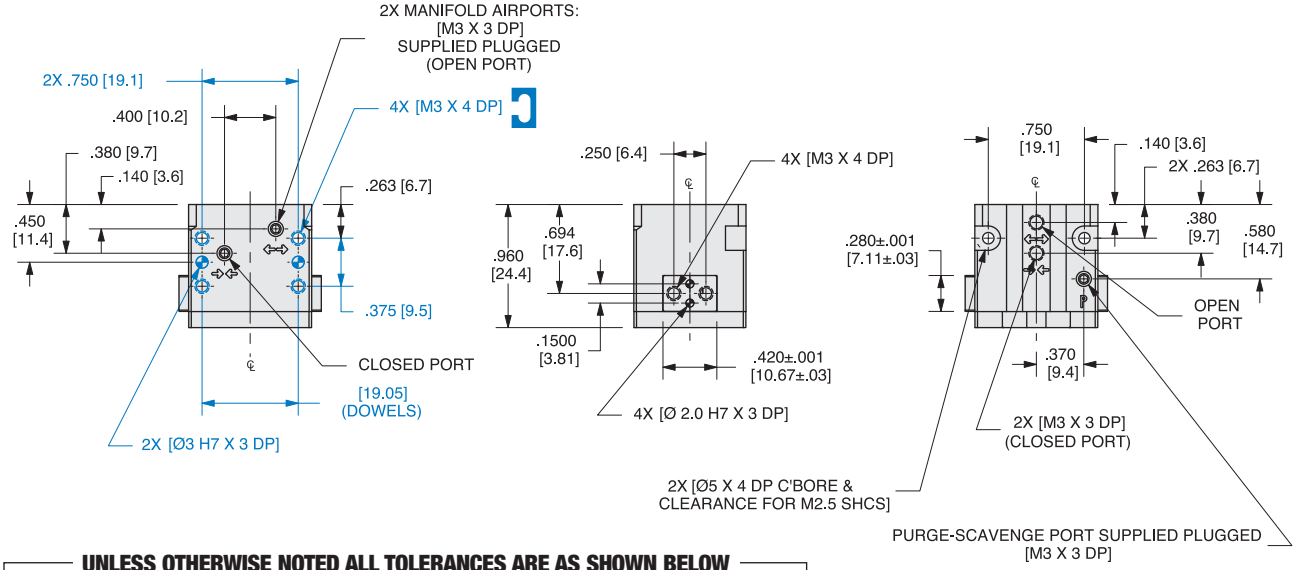






UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | STROKE | HARDWARE

DPDS-047M - [ ] - B - [ ] - V

JAW MOUNTING | VITON® SEALS

STROKE
- **013** .13" [3.2mm]
- **009** .09" [2.4mm]
- **006** .06" [1.6mm]

JAW MOUNTING
- **B** Bottom jaw mounting
- **__** Leave blank for end jaw mounting (standard)

HARDWARE
- **S** Corrosion resistant
- **CR** Corrosion resistant assembled with clean room grade grease
- **__** Leave blank for alloy hardware (standard)

VITON®
- **V** High Temperature Viton® Seals

SAMPLE ORDER: DPDS-047M-006-B-CR-V

Ex: DPDS-047M Gripper, Metric, 1.6mm Stroke, Bottom Jaw Mounting, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

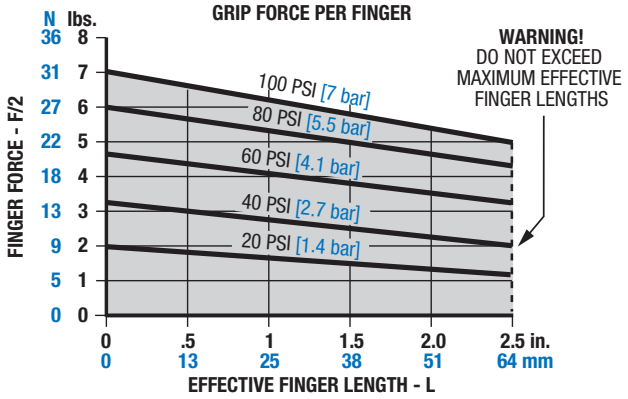
SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1 or 2
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1 or 2
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect*	OHSP-011	1 or 2
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect*	OHSN-011	1 or 2
Quick Disconnect Cable (2 meters long)*	CABL-010	1 or 2
Quick Disconnect Cable (5 meters long)*	CABL-013	1 or 2

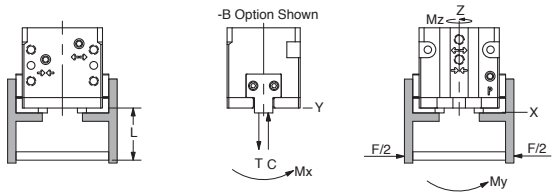
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	SLKT-185	1
Viton® Seal Repair Kit	SLKT-185V	1
Manifold Seal Kit (Viton®)	SLKT-197V	1
Plumbing Fitting - M3 male to 3mm OD Tube Push-in Style	PLFT-021	1 or 2
Plumbing Fitting - M3 male to 2mm ID Tube Barb Style	PLFT-022	1 or 2

*Sensor and cable sold separately

DIRECTCONNECT™

Loading Information





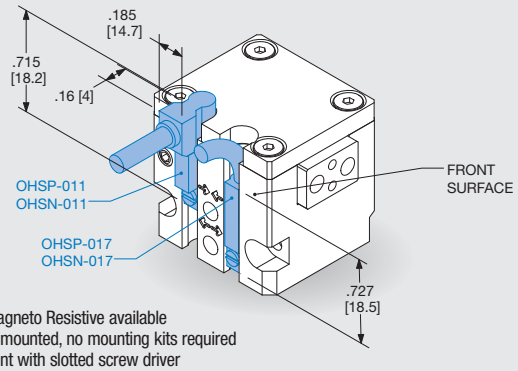
Loading Capacity†	Static	Dynamic
DPDS-047M		
Maximum Tensile **T**	30 lbs. [134 N]	6 lbs. [27 N]
Maximum Compressive **C**	50 lbs. [223 N]	10 lbs. [45 N]
Maximum Moment **Mx**	20 in.-lbs. [2 Nm]	5 in.-lbs. [0.6 Nm]
Maximum Moment **My**	20 in.-lbs. [2 Nm]	5 in.-lbs. [0.6 Nm]
Maximum Moment **Mz**	20 in.-lbs. [2 Nm]	5 in.-lbs. [0.6 Nm]
DPDS-047M-B (Bottom Jaw Mounting Option)		
Maximum Tensile **T**	24 lbs. [107 N]	5 lbs. [22 N]
Maximum Compressive **C**	40 lbs. [178 N]	8 lbs. [36 N]
Maximum Moment **Mx**	16 in.-lbs. [2 Nm]	4 in.-lbs. [0.5 Nm]
Maximum Moment **My**	16 in.-lbs. [2 Nm]	4 in.-lbs. [0.5 Nm]
Maximum Moment **Mz**	16 in.-lbs. [2 Nm]	4 in.-lbs. [0.5 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDS-047M	
Total Rated Grip Force **F** @ 100 psi, 7 bar	14 lbs.	62 N
Maximum Stroke	0.13 in.	3.2 mm
Maximum Operating Pressure Range	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Maximum Pressure for Purge Port	20 psi	1.4 bar
Cylinder Bore Ø	0.469 in.	11.9 mm
Displacement	0.013 in^3	0.2 cm^3

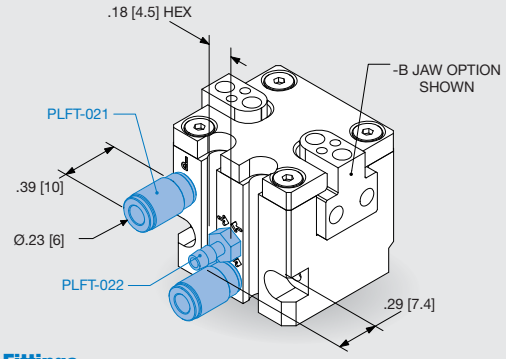
Specifications (cont.)	DPDS-047M	
Weight	0.086 lbs.	0.04 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.13 sec.	0.13 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



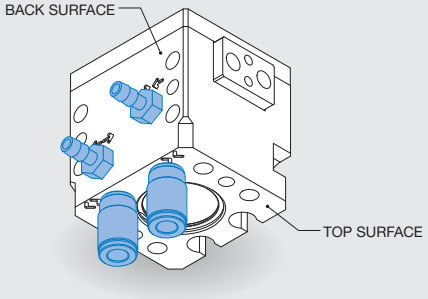
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



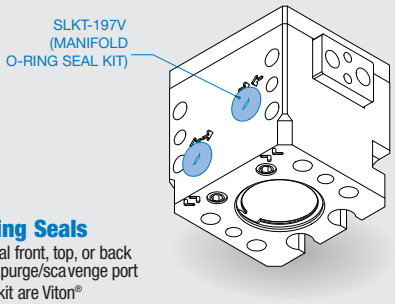
Plumbing Fittings

- M3 fitting for 2mm I.D. tube (PLFT-022 straight barbed style)
- M3 fitting for 3mm O.D. tube (PLFT-021 straight tube push-in style)
- M3 fittings can be used in any airport including the front purge/scavenge port



Multiple Air Port Locations

- 3 standard M3 air port locations (front, top, and back surface)
- Top and Back air ports are plugged as standard



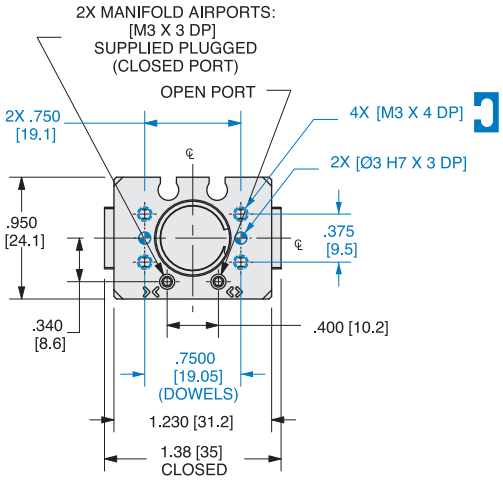
Manifold O-Ring Seals

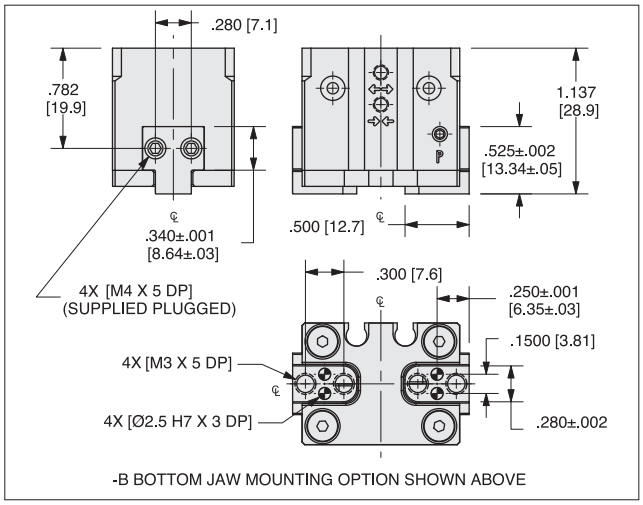
- Can be used to seal front, top, or back air ports and front purge/scavenge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: Ø.215 [Ø5.5] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

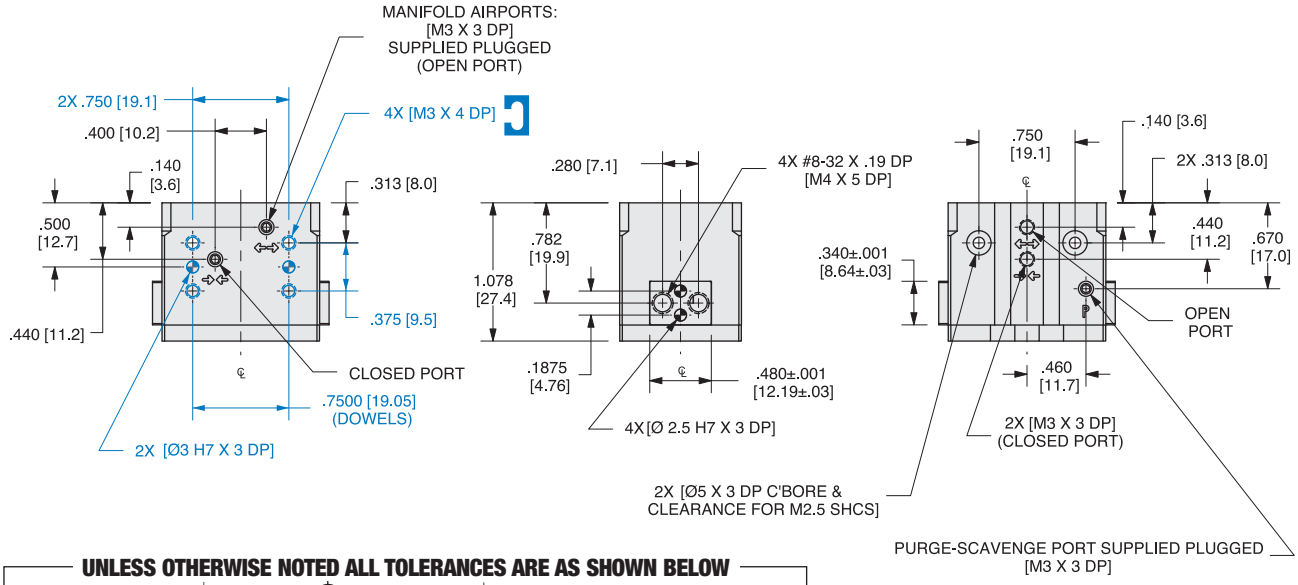
DIRECTCONNECT™

PARALLEL GRIPPER DPDS-056M
DIRECTCONNECT™ MODULAR SERIES

Robohand







UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | STROKE | HARDWARE

DPDS-056M - [ ] - B - [ ] - V

JAW MOUNTING | VITON® SEALS

STROKE	**019**	.19" [4.8mm]
	013	.13" [3.2mm]
	009	.09" [2.4mm]
JAW MOUNTING	**B**	Bottom jaw mounting
	__	Leave blank for end jaw mounting (standard)
HARDWARE	**S**	Corrosion resistant
	CR	Corrosion resistant assembled with clean room grade grease
	__	Leave blank for alloy hardware (standard)
VITON®	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DPDS-056M-009-B-CR-V

Ex: DPDS-056M Gripper, Metric, 2.4mm Stroke, Bottom Jaw Mounting, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor with Quick Disconnect*	**OHSN-017**	**1 or 2**
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect*	**OHSP-011**	**1 or 2**
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect*	**OHSN-011**	**1 or 2**
Quick Disconnect Cable (2 meters long)*	**CABL-010**	**1 or 2**
Quick Disconnect Cable (5 meters long)*	**CABL-013**	**1 or 2**

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-186**	**1**
Viton® Seal Repair Kit	**SLKT-186V**	**1**
Manifold Seal Kit (Viton®)	**SLKT-197V**	**1**
Plumbing Fitting - M3 male to 3mm OD Tube Push-in Style	**PLFT-021**	**1 or 2**
Plumbing Fitting - M3 male to 2mm ID Tube Barb Style	**PLFT-022**	**1 or 2**

*Sensor and cable sold separately

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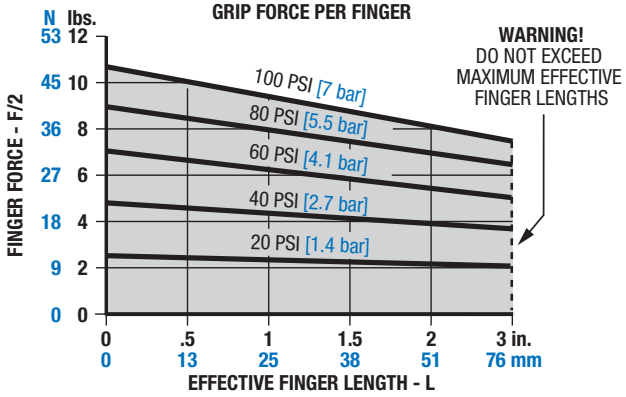
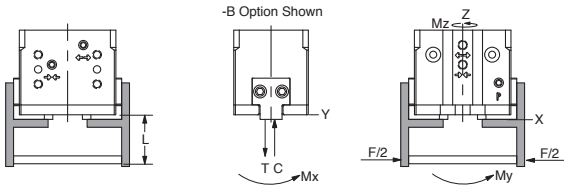




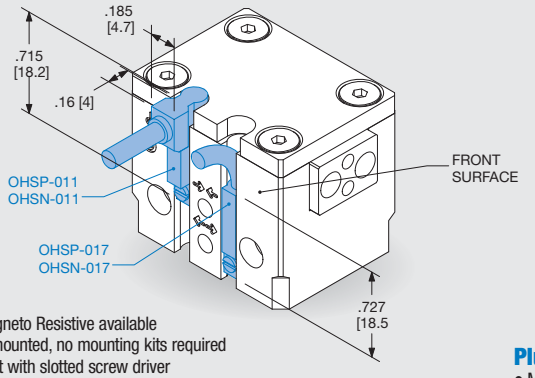
Loading Capacity†	Static	Dynamic
DPDS-056M		
Maximum Tensile **T**	60 lbs. [267 N]	10 lbs. [45 N]
Maximum Compressive **C**	90 lbs. [401 N]	15 lbs. [67 N]
Maximum Moment M_x	40 in.-lbs. [5 Nm]	7 in.-lbs. [0.8 Nm]
Maximum Moment M_y	40 in.-lbs. [5 Nm]	7 in.-lbs. [0.8 Nm]
Maximum Moment M_z	40 in.-lbs. [5 Nm]	7 in.-lbs. [0.8 Nm]
DPDS-056M-B (Bottom Jaw Mounting Option)		
Maximum Tensile **T**	48 lbs. [214 N]	8 lbs. [36 N]
Maximum Compressive **C**	72 lbs. [320 N]	12 lbs. [53 N]
Maximum Moment M_x	32 in.-lbs. [4 Nm]	6 in.-lbs. [1 Nm]
Maximum Moment M_y	32 in.-lbs. [4 Nm]	6 in.-lbs. [1 Nm]
Maximum Moment M_z	32 in.-lbs. [4 Nm]	6 in.-lbs. [1 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDS-056M	
Total Rated Grip Force **F** @ 100 psi, 7 bar	22 lbs.	98 N
Maximum Stroke	0.19 in.	4.8 mm
Maximum Operating Pressure Range	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Maximum Pressure for Purge Port	20 psi	1.4 bar
Cylinder Bore Ø	0.563 in.	14.3 mm
Displacement	0.028 in^3	0.5 cm^3

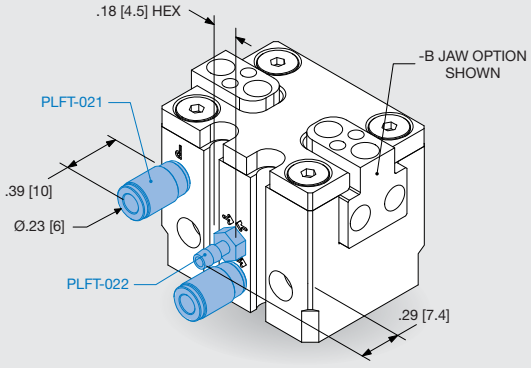
Specifications (cont.)	DPDS-056M	
Weight	0.155 lbs.	0.07 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.16 sec.	0.16 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



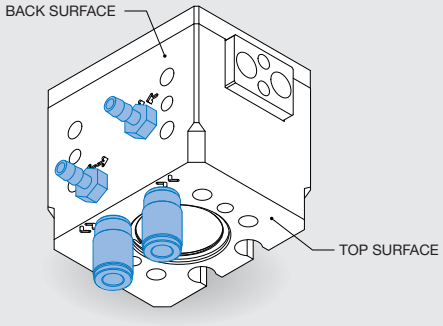
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



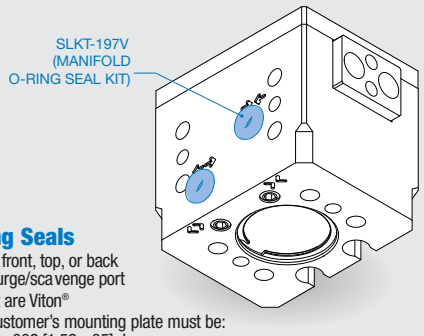
Plumbing Fittings

- M3 fitting for 2mm I.D. tube (PLFT-022 straight barbed style)
- M3 fitting for 3mm O.D. tube (PLFT-021 straight tube push-in style)
- M3 fittings can be used in any airport including the front purge/scavenge port



Multiple Air Port Locations

- 3 standard M3 air port locations (front, top, and back surface)
- Top and Back air ports are plugged as standard



Manifold O-Ring Seals

- Can be used to seal front, top, or back air ports and front purge/scavenge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: Ø.215 [Ø5.5] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

DIRECTCONNECT™

PARALLEL GRIPPER DPDS-088M
DIRECTCONNECT™ MODULAR SERIES

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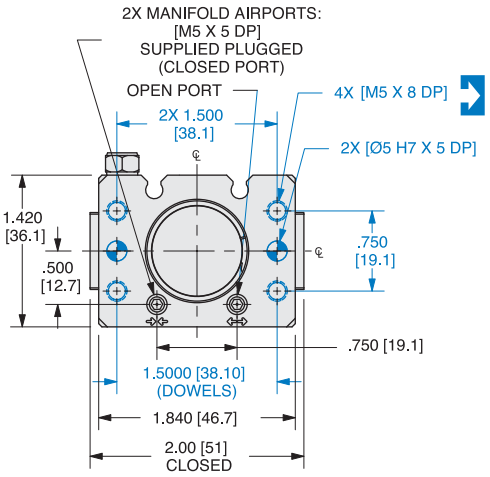

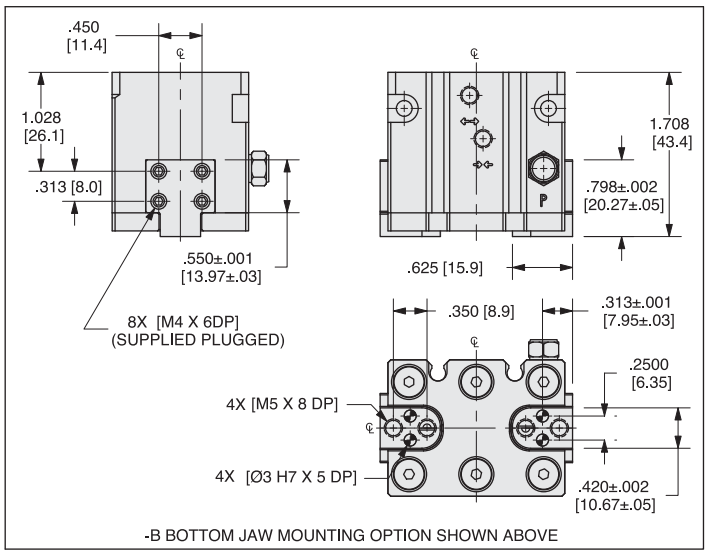

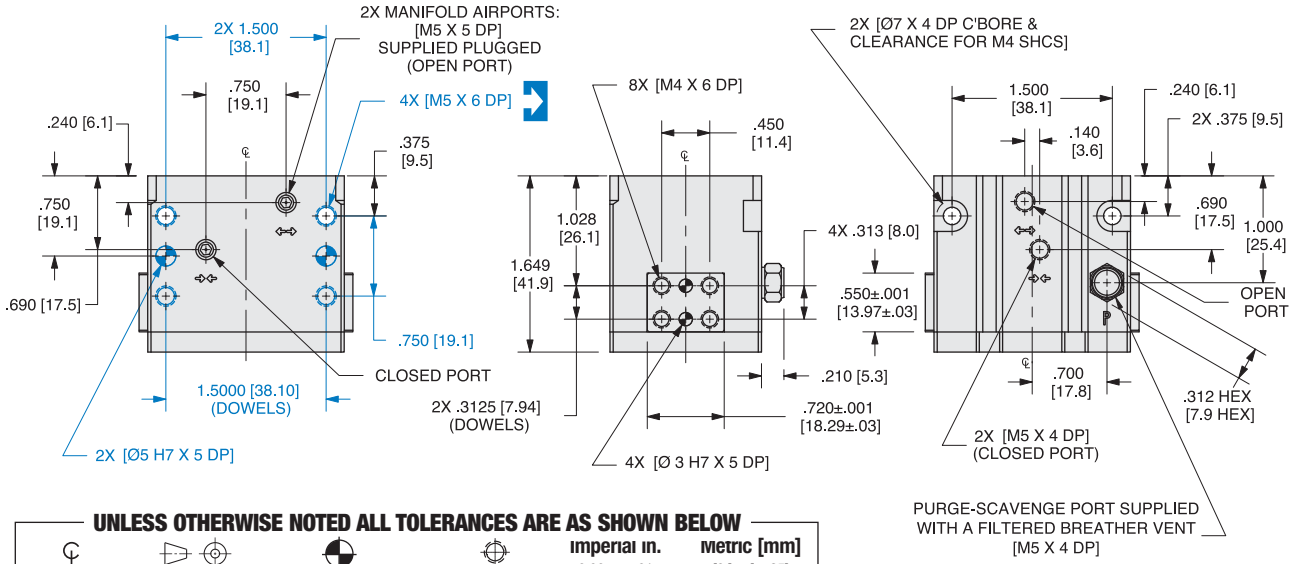

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

				Imperial in.	Metric [mm]
℄ Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | STROKE | HARDWARE

DPDS-088M - [ ] - B - [ ] - V

JAW MOUNTING | VITON® SEALS

STROKE	**025**	.25" [6.4mm]
	019	.19" [4.8mm]
	013	.13" [3.2mm]
JAW MOUNTING	**B**	Bottom jaw mounting
	—	Leave blank for end jaw mounting (standard)
HARDWARE	**S**	Corrosion resistant
	CR	Corrosion resistant assembled with clean room grade grease
	—	Leave blank for alloy hardware (standard)
VITON®	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DPDS-088M-019-B-CR-V

Ex: DPDS-088M Gripper, Metric, 4.8mm Stroke, Bottom Jaw Mounting, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor with Quick Disconnect*	**OHSN-017**	**1 or 2**
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect*	**OHSP-011**	**1 or 2**
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect*	**OHSN-011**	**1 or 2**
Quick Disconnect Cable (2 meters long)*	**CABL-010**	**1 or 2**
Quick Disconnect Cable (5 meters long)*	**CABL-013**	**1 or 2**

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-187**	**1**
Viton® Seal Repair Kit	**SLKT-187V**	**1**
Manifold Seal Kit (Viton®)	**SLKT-199V**	**1**
Adjustable Flow Control M5 Elbow - 6mm OD Push-in (Metric)	**VLVF-008**	**1 or 2**
Fail Safe Valve M5	**OFSV-004**	**1**

*Sensor and cable sold separately

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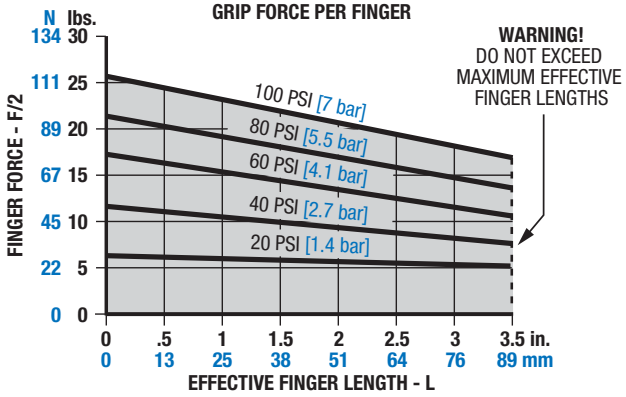
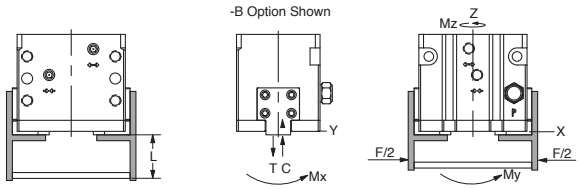




Loading Capacity†

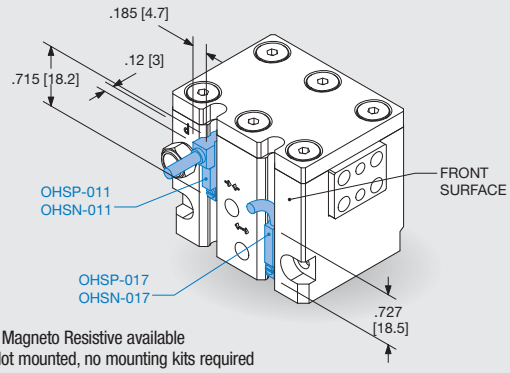
	Static	Dynamic
DPDS-088M		
Maximum Tensile **T**	138 lbs. [614 N]	25 lbs. [111 N]
Maximum Compressive **C**	275 lbs. [1224 N]	25 lbs. [111 N]
Maximum Moment **Mx**	120 in.-lbs. [14 Nm]	20 in.-lbs. [2 Nm]
Maximum Moment **My**	120 in.-lbs. [14 Nm]	20 in.-lbs. [2 Nm]
Maximum Moment **Mz**	120 in.-lbs. [14 Nm]	20 in.-lbs. [2 Nm]
DPDS-088M-B (Bottom Jaw Mounting Option)		
Maximum Tensile **T**	110 lbs. [490 N]	20 lbs. [89 N]
Maximum Compressive **C**	220 lbs. [979 N]	20 lbs. [89 N]
Maximum Moment **Mx**	96 in.-lbs. [11 Nm]	16 in.-lbs. [2 Nm]
Maximum Moment **My**	96 in.-lbs. [11 Nm]	16 in.-lbs. [2 Nm]
Maximum Moment **Mz**	96 in.-lbs. [11 Nm]	16 in.-lbs. [2 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDS-088M	
Total Rated Grip Force **F** @ 100 psi, 7 bar	50 lbs.	222 N
Maximum Stroke	0.25 in.	6.4 mm
Maximum Operating Pressure Range	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Maximum Pressure for Purge Port	20 psi	1.4 bar
Cylinder Bore Ø	0.875 in.	22.2 mm
Displacement	0.090 in^3	1.5 cm^3

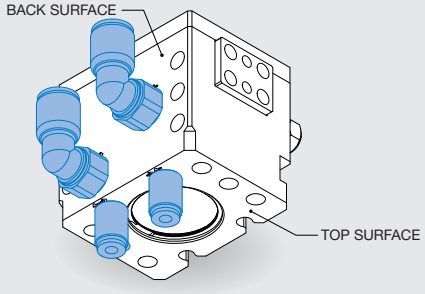
Specifications (cont.)	DPDS-088M	
Weight	0.51 lbs.	0.23 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.20 sec.	0.20 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



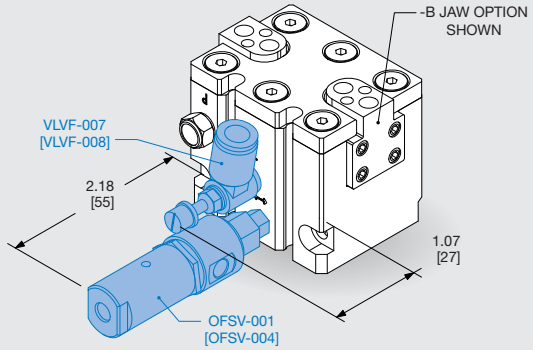
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



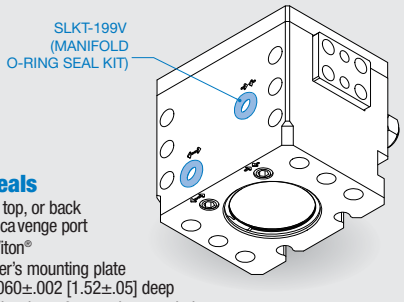
Multiple Air Port Locations

- 3 standard M5 air port locations (front, top, and back surface)
- Top and Back air ports are plugged as standard



Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actua tion time:
  - Available for 6mm O.D. tubing
- Failsafe valve for applications:
  - Where it is critical that the part being gripped not be dropped if air pressure is lost
  - Can mount directly to gripper or in-line with plumbing to gripper
  - M5 air port
- Consult factory for additional plumbing fittings

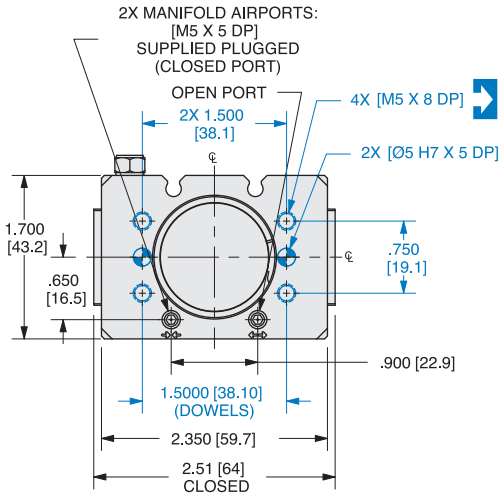


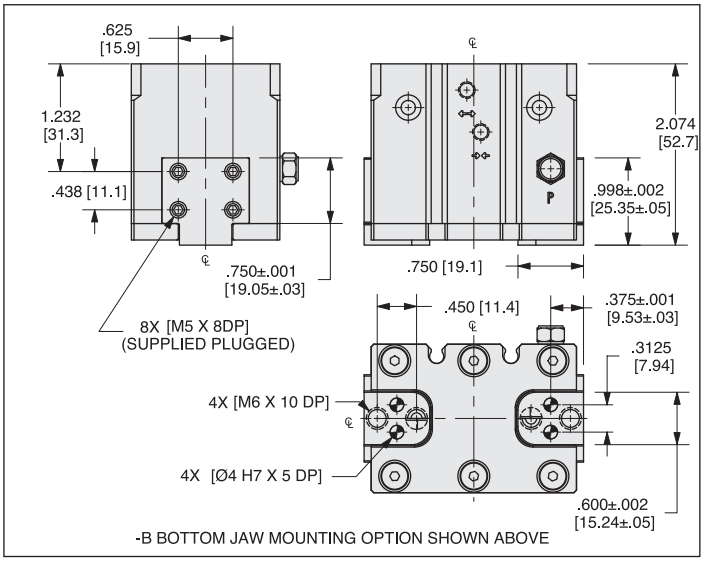
Manifold O-Ring Seals

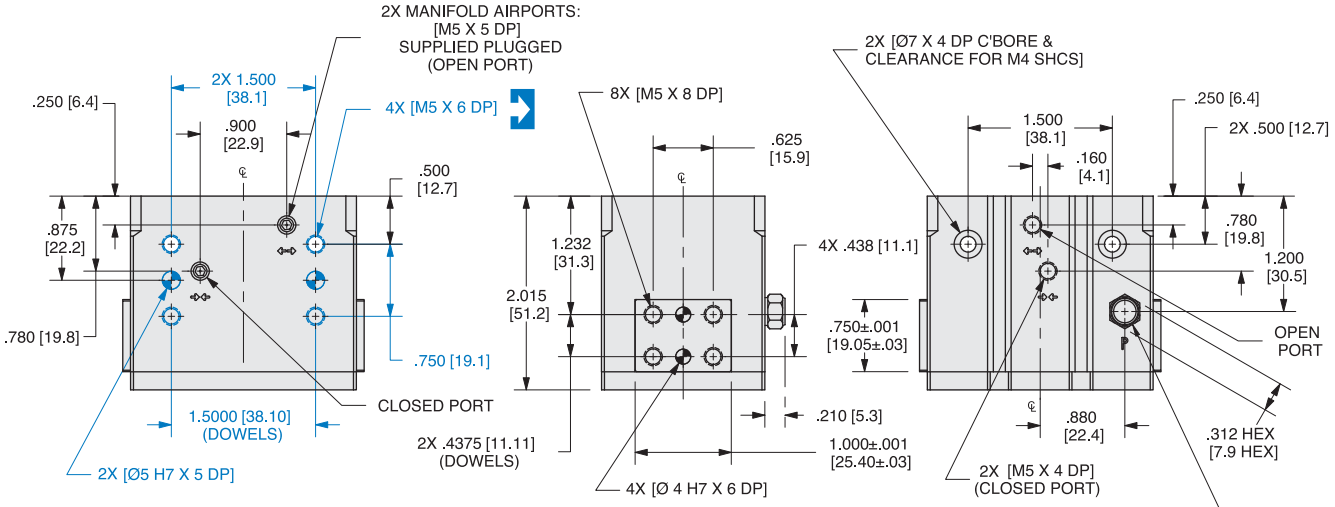
- Can be used to seal front, top, or back air ports and front purge/scavenge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: Ø.290 [Ø7.4] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

DIRECTCONNECT™

PARALLEL GRIPPER DPDS-125M
DIRECTCONNECT™ MODULAR SERIES







UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | STROKE | HARDWARE

DPDS-125M - [ ] - B - [ ] - V

JAW MOUNTING | VITON® SEALS

STROKE	**038**	.38" [9.5mm]
	025	.25" [6.4mm]
	019	.19" [4.8mm]
JAW MOUNTING	**B**	Bottom jaw mounting
	__	Leave blank for end jaw mounting (standard)
HARDWARE	**S**	Corrosion resistant
	CR	Corrosion resistant assembled with clean room grade grease
	__	Leave blank for alloy hardware (standard)
VITON®	**V**	High Temperature Viton® Seals

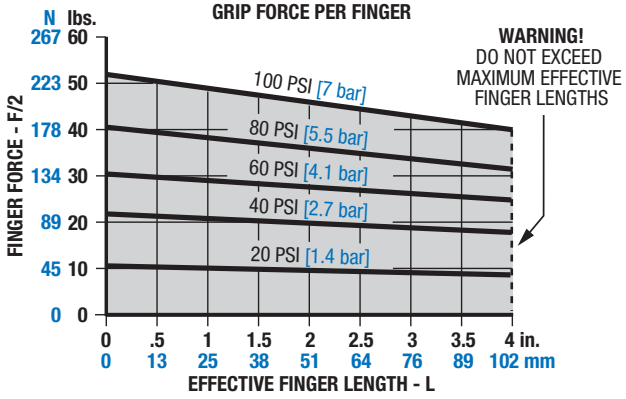
SAMPLE ORDER: DPDS-125M-025-B-CR-V

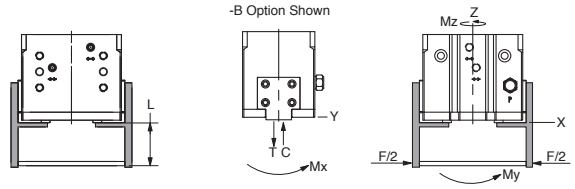
Ex: DPDS-125M Gripper, Metric, 6.4mm Stroke, Bottom Jaw Mounting, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor with Quick Disconnect*	**OHSN-017**	**1 or 2**
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect*	**OHSP-011**	**1 or 2**
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect*	**OHSN-011**	**1 or 2**
Quick Disconnect Cable (2 meters long)*	**CABL-010**	**1 or 2**
Quick Disconnect Cable (5 meters long)*	**CABL-013**	**1 or 2**

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-188**	**1**
Viton® Seal Repair Kit	**SLKT-188V**	**1**
Manifold Seal Kit (Viton®)	**SLKT-199V**	**1**
Adjustable Flow Control M5 Elbow - 6mm OD Push-in (Metric)	**VLVF-008**	**1 or 2**
Fail Safe Valve M5	**OFSV-004**	**1**

*Sensor and cable sold separately





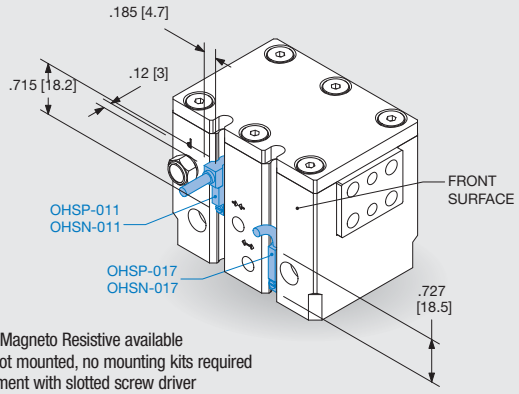
Loading Capacity†	Static	Dynamic
DPDS-125M		
Maximum Tensile **T**	500 lbs. [2225 N]	65 lbs. [289 N]
Maximum Compressive **C**	950 lbs. [4228 N]	65 lbs. [289 N]
Maximum Moment M_x	425 in.-lbs. [48 Nm]	70 in.-lbs. [8 Nm]
Maximum Moment M_y	425 in.-lbs. [48 Nm]	70 in.-lbs. [8 Nm]
Maximum Moment M_z	425 in.-lbs. [48 Nm]	70 in.-lbs. [8 Nm]
DPDS-125M-B (Bottom Jaw Mounting Option)		
Maximum Tensile **T**	400 lbs. [1780 N]	52 lbs. [231 N]
Maximum Compressive **C**	760 lbs. [3382 N]	52 lbs. [231 N]
Maximum Moment M_x	340 in.-lbs. [38 Nm]	56 in.-lbs. [6 Nm]
Maximum Moment M_y	340 in.-lbs. [38 Nm]	56 in.-lbs. [6 Nm]
Maximum Moment M_z	340 in.-lbs. [38 Nm]	56 in.-lbs. [6 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDS-125M	
Total Rated Grip Force **F** @ 100 psi, 7 bar	100 lbs.	445 N
Maximum Stroke	0.38 in.	9.5 mm
Maximum Operating Pressure Range	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Maximum Pressure for Purge Port	20 psi	1.4 bar
Cylinder Bore Ø	1.250 in.	31.8 mm
Displacement	0.274 in^3	4.5 cm^3

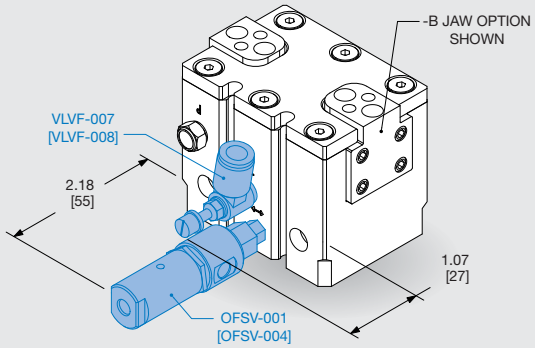
Specifications (cont.)	DPDS-125M	
Weight	1.03 lbs.	0.46 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.30 sec.	0.30 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



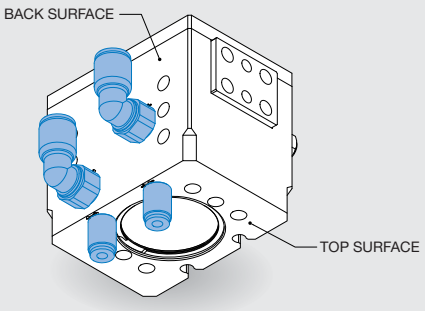
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



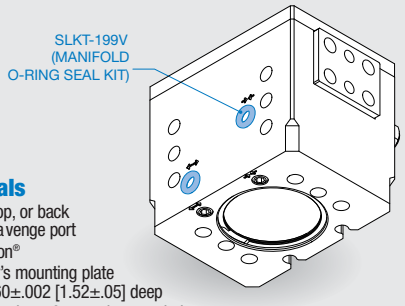
Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actua tion time
  - Available for 6mm O.D. tubing
- Failsafe valve for applications:
  - Where it is critical that the part being gripped not be dropped if air pressure is lost
  - Can mount directly to gripper or in-line with plumbing to gripper
  - M5 air port
- Consult factory for additional plumbing fittings



Multiple Air Port Locations

- 3 standard M5 air port locations (front, top, and back surface)
- Top and Back air ports are plugged as standard



Manifold O-Ring Seals

- Can be used to seal front, top, or back air ports and front purge/sca venge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: Ø.290 [Ø7.4] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

DIRECTCONNECT™

PARALLEL GRIPPER DPDS-175M
DIRECTCONNECT™ MODULAR SERIES

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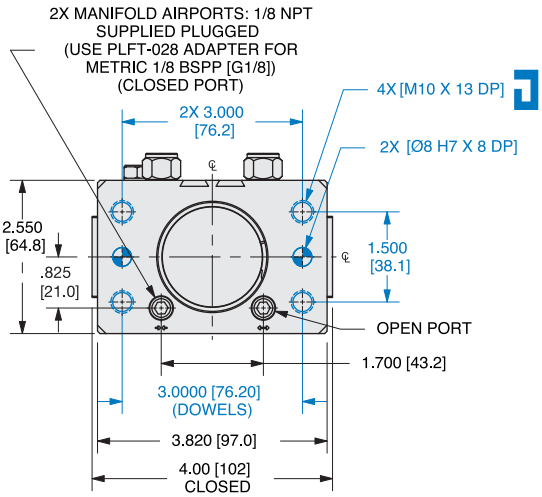

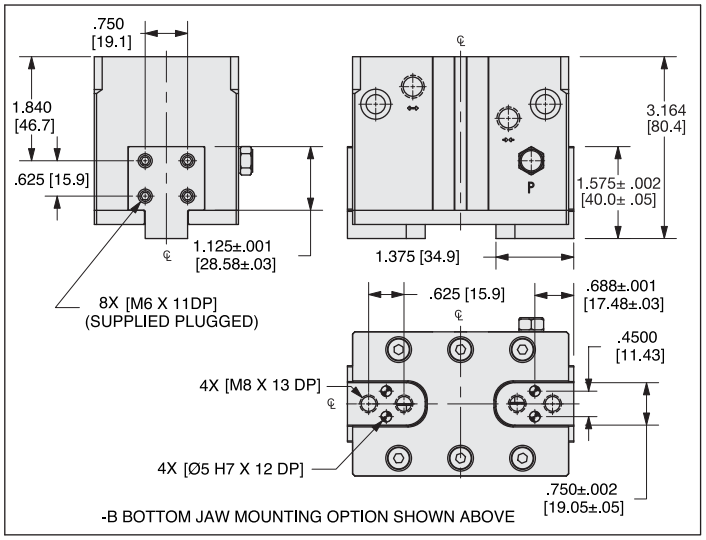

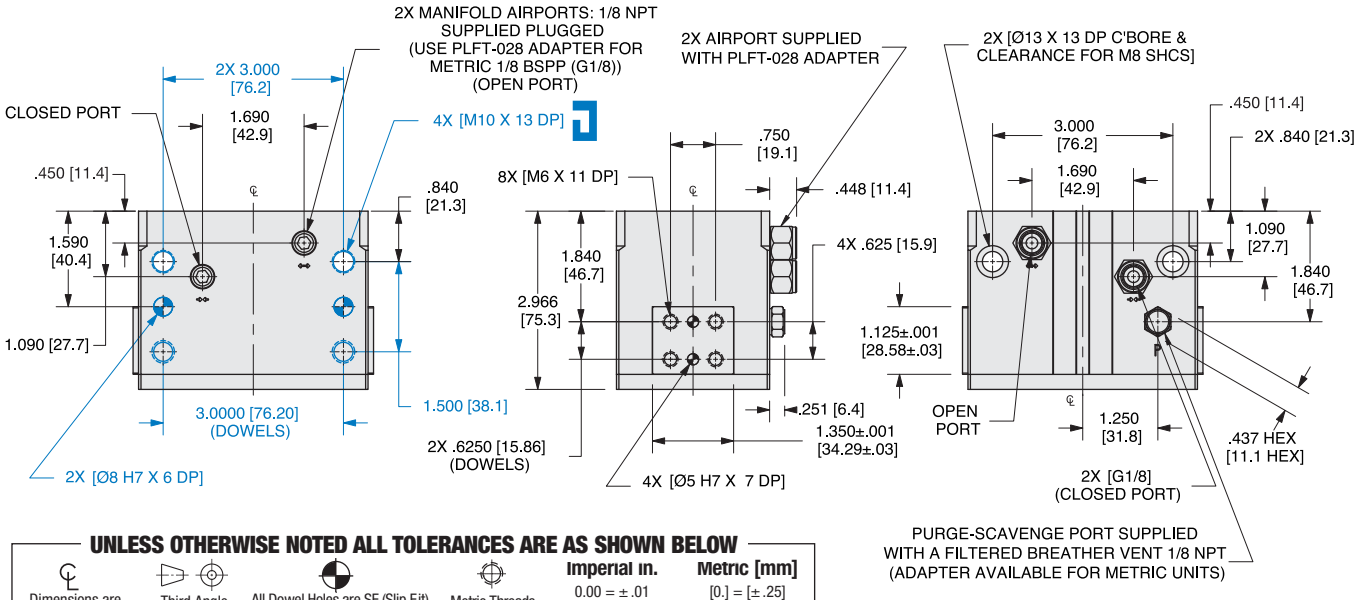

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | STROKE | HARDWARE

DPDS-175M - [ ] - B - [ ] - V

JAW MOUNTING | VITON® SEALS

STROKE	**050**	.50" [12.7mm]
	038	.38" [9.5mm]
	025	.25" [6.4mm]
JAW MOUNTING	**B**	Bottom jaw mounting
	__	Leave blank for end jaw mounting (standard)
HARDWARE	**S**	Corrosion resistant
	CR	Corrosion resistant assembled with clean room grade grease
	__	Leave blank for alloy hardware (standard)
VITON®	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DPDS-175M-038-B-CR-V

Ex: DPDS-175M Gripper, Metric, 9.5mm Stroke, Bottom Jaw Mounting, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor w/12mm Dovetail*	**OHSP-015**	**1 or 2**
NPN Magneto Resistive Sensor w/12mm Dovetail*	**OHSN-015**	**1 or 2**
Quick Disconnect Cable (2 meters long)*	**CABL-010**	**1 or 2**
Quick Disconnect Cable (5 meters long)*	**CABL-013**	**1 or 2**

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-189**	**1**
Viton® Seal Repair Kit	**SLKT-189V**	**1**
Manifold Seal Kit (Viton®)	**SLKT-201V**	**1**
Adjustable Flow Control G 1/8 Elbow - 6mm OD Push-in (Metric)	**VLVF-005**	**1 or 2**
Fail Safe Valve G 1/8 (1/8 BSPP) (Metric)	**OFSV-005**	**1**
Plumbing Fitting Adapter - 1/8 NPT Male to 1/8 BSPP Female	**PLFT-028**	**1 or 2**

*Sensor and cable sold separately

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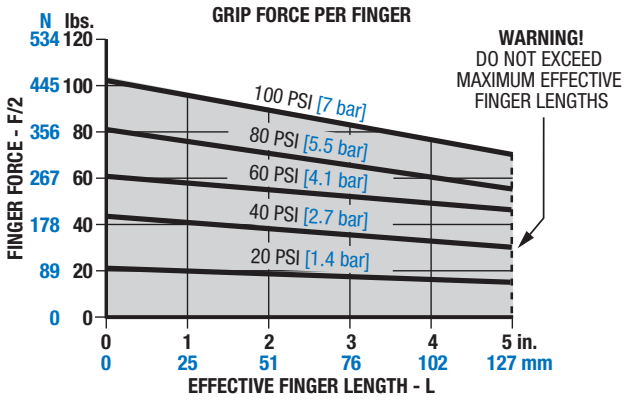
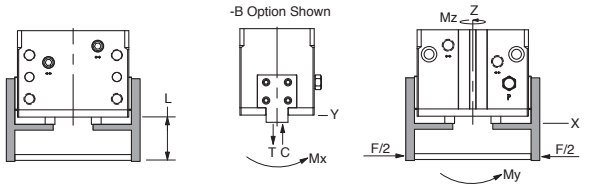




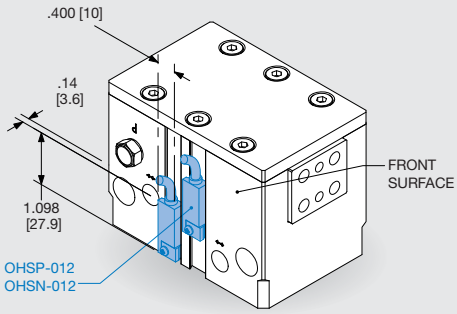
Loading Capacity†	Static	Dynamic
DPDS-175M		
Maximum Tensile **T**	1000 lbs. [4450 N]	150 lbs. [668 N]
Maximum Compressive **C**	2000 lbs. [8900 N]	150 lbs. [668 N]
Maximum Moment **Mx**	1000 in.-lbs. [113 Nm]	175 in.-lbs. [20 Nm]
Maximum Moment **My**	1000 in.-lbs. [113 Nm]	175 in.-lbs. [20 Nm]
Maximum Moment **Mz**	1000 in.-lbs. [113 Nm]	175 in.-lbs. [20 Nm]
DPDS-175M-B (Bottom Jaw Mounting Option)		
Maximum Tensile **T**	800 lbs. [3560 N]	120 lbs. [534 N]
Maximum Compressive **C**	1600 lbs. [7120 N]	120 lbs. [534 N]
Maximum Moment **Mx**	800 in.-lbs. [90 Nm]	140 in.-lbs. [16 Nm]
Maximum Moment **My**	800 in.-lbs. [90 Nm]	140 in.-lbs. [16 Nm]
Maximum Moment **Mz**	800 in.-lbs. [90 Nm]	140 in.-lbs. [16 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDS-175M	
Total Rated Grip Force **F** @ 100 psi, 7 bar	200 lbs.	890 N
Maximum Stroke	0.50 in.	12.7 mm
Maximum Operating Pressure Range	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Maximum Pressure for Purge Port	20 psi	1.4 bar
Cylinder Bore Ø	1.750 in.	44.5 mm
Displacement	0.717 in^3	11.7 cm^3

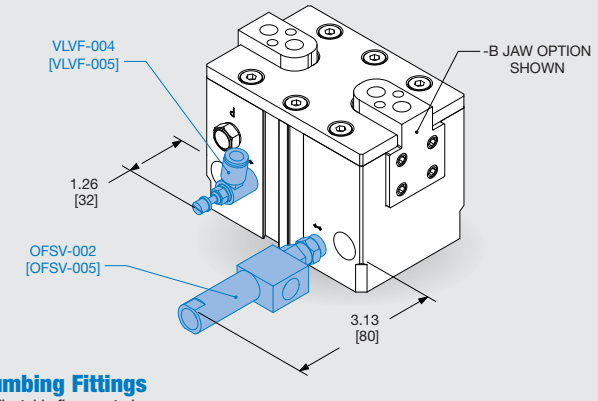
Specifications (cont.)	DPDS-175M	
Weight	3.70 lbs.	1.68 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.40 sec.	0.40 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



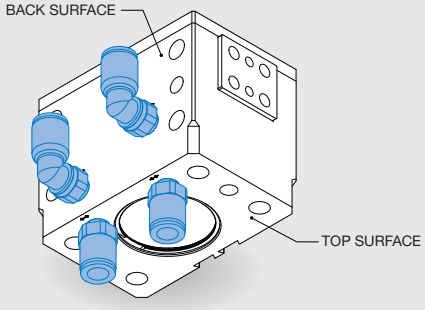
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are dovetail slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



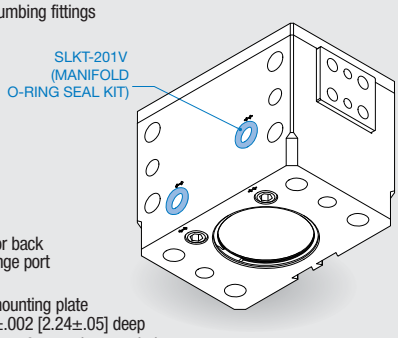
Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actua tion time
  - Available for 6mm O.D. tubing
- Failsafe valve:
  - For applications where it is critical tha t the part being gripped not be dropped if air pressure is lost:
  - Can mount directly to gripper or in-line with plumbing to gripper
  - 1/8NPT air port for standard - G1/8 (BSPP) air port for Metric
- Consult factory for additional plumbing fittings



Multiple Air Port Locations

- 3 standard 1/8NPT air port locations (front, top, and back surface)
- Use PLFT-028 adapter (1/8NPT male to G1/8 (BSPP) female)
- Top and Back air ports are plugged as standard



Manifold O-Ring Seals

- Can be used to seal front, top, or back air ports and front purge/scavenge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: Ø.515 [Ø13.1] X .088±.002 [2.24±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

DIRECTCONNECT™

PARALLEL GRIPPER DPDS-250M
DIRECTCONNECT™ MODULAR SERIES

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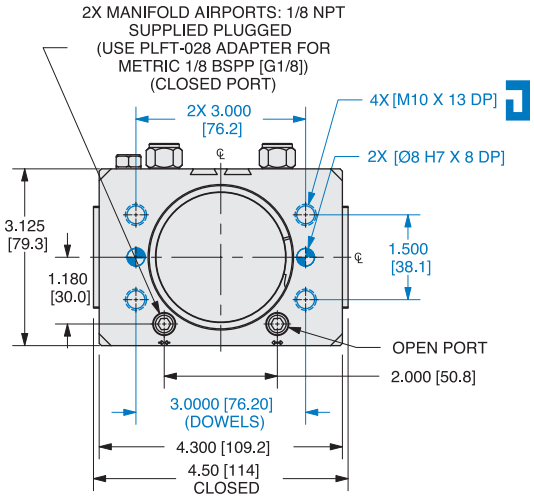

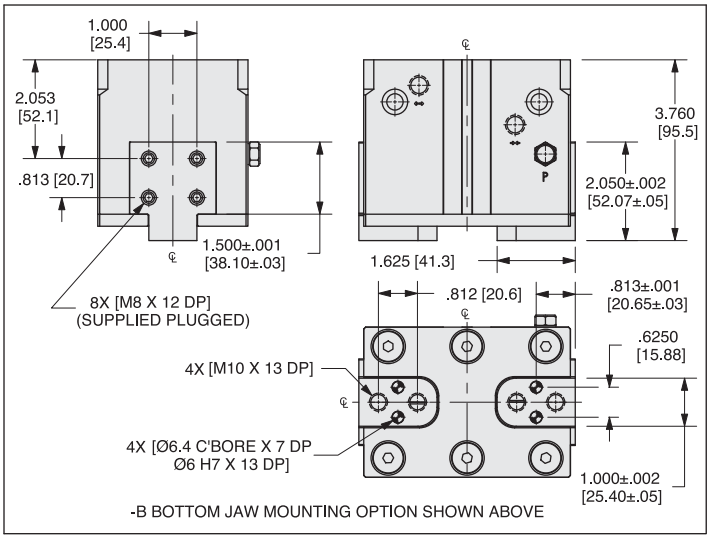

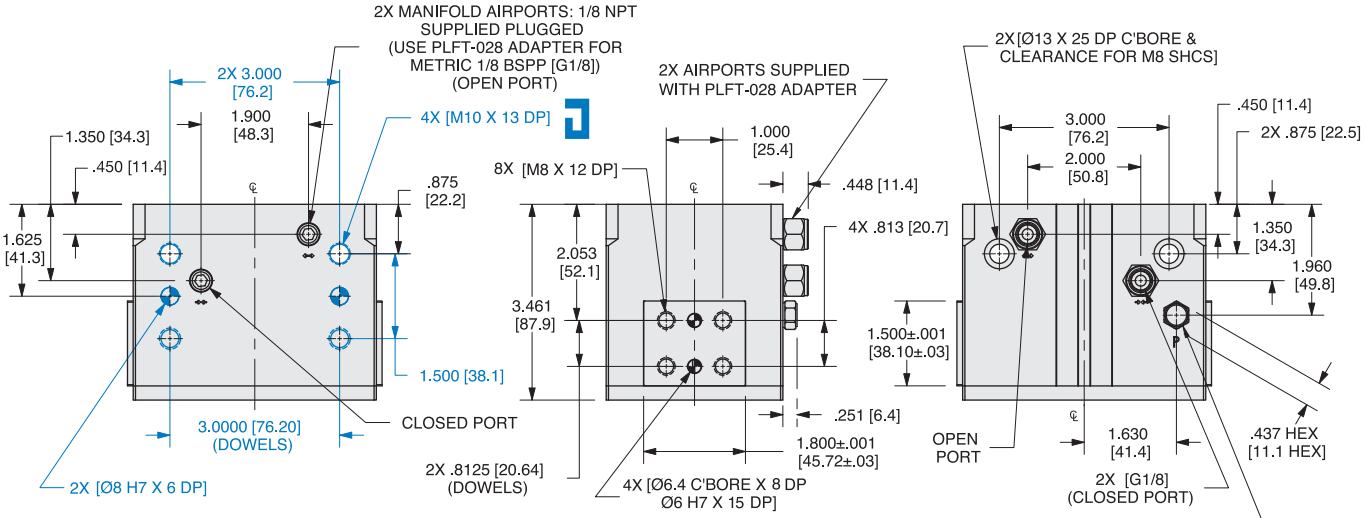

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | STROKE | HARDWARE

DPDS-250M - [ ] - B - [ ] - V

JAW MOUNTING | VITON® SEALS

STROKE	**075**	.75" [19.1mm]
	050	.50" [12.7mm]
	038	.38" [9.5mm]
JAW MOUNTING	**B**	Bottom jaw mounting
	__	Leave blank for end jaw mounting (standard)
HARDWARE	**S**	Corrosion resistant
	CR	Corrosion resistant assembled with clean room grade grease
	__	Leave blank for alloy hardware (standard)
VITON®	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DPDS-250M-050-B-CR-V

Ex: DPDS-250M Gripper, Metric, 12.7mm Stroke, Bottom Jaw Mounting, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor w/12mm Dovetail*	**OHSP-015**	**1 or 2**
NPN Magneto Resistive Sensor w/12mm Dovetail*	**OHSN-015**	**1 or 2**
Quick Disconnect Cable (2 meters long)*	**CABL-010**	**1 or 2**
Quick Disconnect Cable (5 meters long)*	**CABL-013**	**1 or 2**

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-190**	**1**
Viton® Seal Repair Kit	**SLKT-190V**	**1**
Manifold Seal Kit (Viton®)	**SLKT-201V**	**1**
Adjustable Flow Control G 1/8 Elbow - 6mm OD Push-in (Metric)	**VLVF-005**	**1 or 2**
Fail Safe Valve G 1/8 (1/8 BSPP) (Metric)	**OFSV-005**	**1**
Plumbing Fitting Adapter - 1/8 NPT Male to 1/8 BSPP Female	**PLFT-028**	**1 or 2**

*Sensor and cable sold separately

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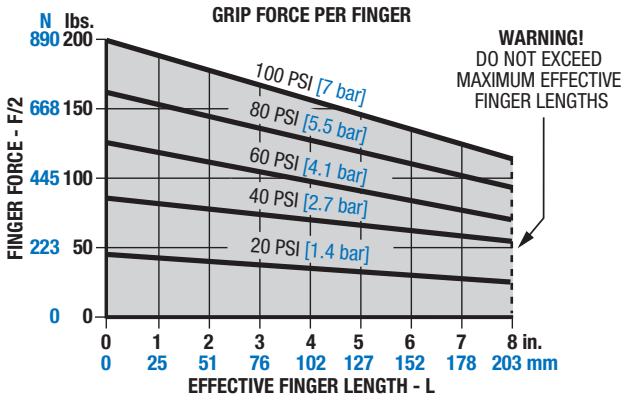
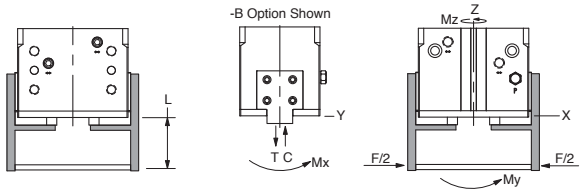




Loading Capacity†

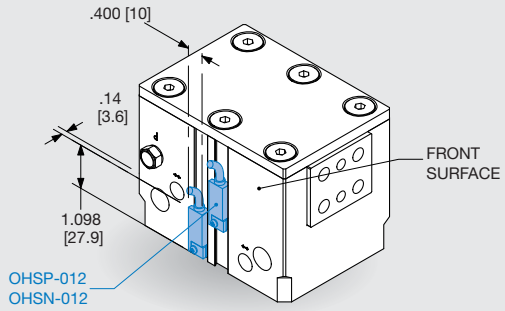
	Static	Dynamic
DPDS-250M		
Maximum Tensile **T**	1300 lbs. [5785 N]	220 lbs. [979 N]
Maximum Compressive **C**	2700 lbs. [12015 N]	220 lbs. [979 N]
Maximum Moment **Mx**	1350 in.-lbs. [153 Nm]	225 in.-lbs. [25 Nm]
Maximum Moment **My**	1350 in.-lbs. [153 Nm]	225 in.-lbs. [25 Nm]
Maximum Moment **Mz**	1350 in.-lbs. [153 Nm]	225 in.-lbs. [25 Nm]
DPDS-250M-B (Bottom Jaw Mounting Option)		
Maximum Tensile **T**	1040 lbs. [4628 N]	176 lbs. [783 N]
Maximum Compressive **C**	2160 lbs. [9612 N]	176 lbs. [783 N]
Maximum Moment **Mx**	1080 in.-lbs. [122 Nm]	180 in.-lbs. [20 Nm]
Maximum Moment **My**	1080 in.-lbs. [122 Nm]	180 in.-lbs. [20 Nm]
Maximum Moment **Mz**	1080 in.-lbs. [122 Nm]	180 in.-lbs. [20 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDS-250M	
Total Rated Grip Force **F** @ 100 psi, 7 bar	400 lbs.	1779 N
Maximum Stroke	0.75 in.	19.1 mm
Maximum Operating Pressure Range	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Maximum Pressure for Purge Port	20 psi	1.4 bar
Cylinder Bore Ø	2.500 in.	63.5 mm
Displacement	2.194 in^3	36.0 cm^3

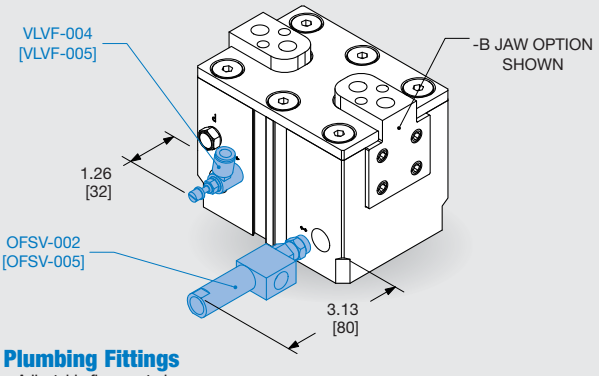
Specifications (cont.)	DPDS-250M	
Weight	6.08 lbs.	2.76 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.50 sec.	0.50 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



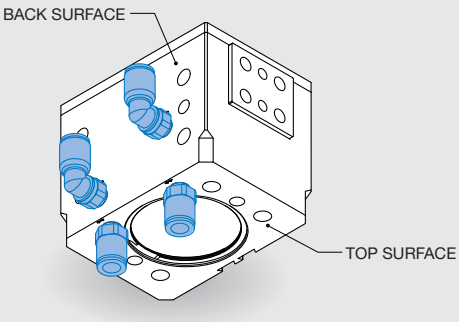
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are dovetail slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



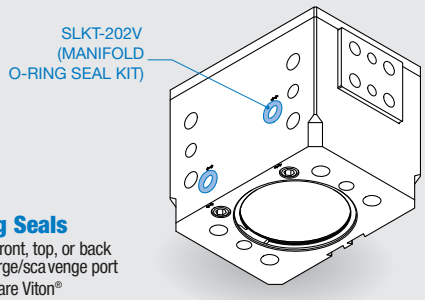
Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actua tion time
  - Available for 6mm O.D. tubing
- Failsafe valve:
  - For applications where it is critical tha t the part being gripped not be dropped if air pressure is lost
  - Can mount directly to gripper or in-line with plumbing to gripper
  - G1/8 (BSPP) air port
- Consult factory for additional plumbing fittings



Multiple Air Port Locations

- 3 standard 1/8NPT air port locations (front, top, and back surface)
- Use PLFT-028 adapter (1/8NPT male to G1/8 (BSPP) female)
- Top and Back air ports are plugged as standard



Manifold O-Ring Seals

- Can be used to seal front, top, or back air ports and front purge/sca venge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: Ø.515 [Ø13.1] X .088±.002 [2.24±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

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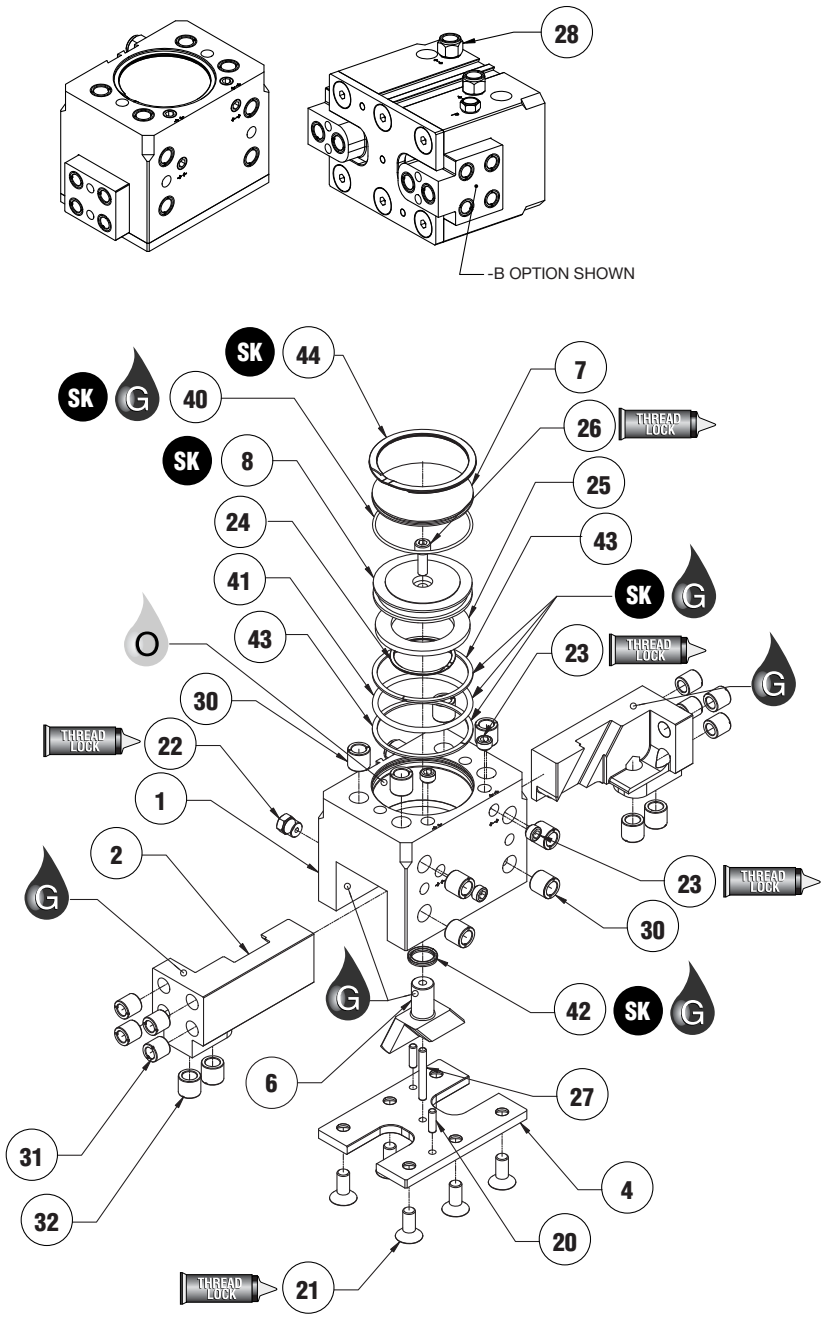
DPDS SERIES EXPLODED VIEW



Item	Qty	Name
01	1	Body
02	2	Jaw
04	1	Bottom Plate
06	1	Shaft Wedge
07	1	Cap
08	1	Piston
20	2	Bottom Plate Locating Dowels
21	6	Bottom Plate Screws
22*	1	Breather Vent Plug (Purge)
23	4	Manifold Port Plugs
24	1	Piston Mag. Ret. Ring
25	1	Piston Magnet
26	1	Piston Mounting Screw
27	1	Shaft guide dowel pin
28*	2	Plumbing Fitting - Adapter - 1/8NPT male to 1/8BSPP female
30*	8	Threaded Inserts (Body)
31*	8	Threaded Inserts (Jaw - End Mount)
32*	4	Threaded Inserts (Jaw - Bottom Mount "-B" option only)
40	1	Cap O-ring
41	1	Piston O-ring
42	1	U-cup
43*	2	Piston Teflon Ring
44	1	Cap Ret. Ring

NOTES:*

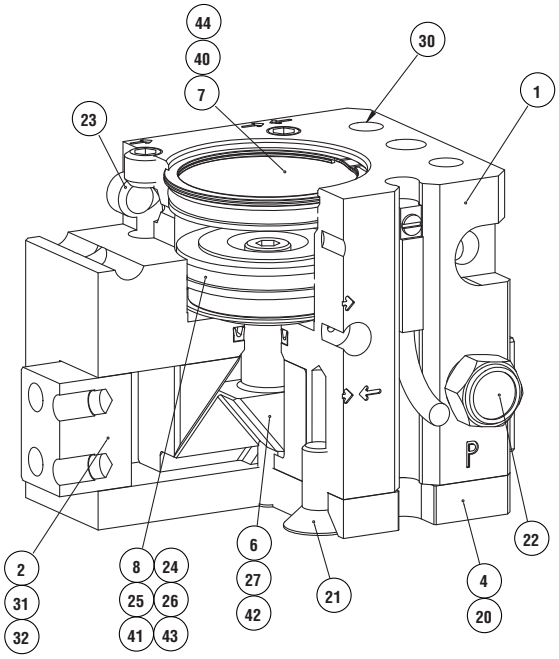
1) Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.
2) Item #30 is for size -175 and -250 only.
3) Item #31 and #32 are for size -250 only.
4) Item #22 Breather vent plug is a set screw plug for sizes -047 & -056.
5) Item #43 is for size -175 and -250 only.
6) Item #28 is for metric size -175M and –250M only.

SK Seal Repair Kit Order #'s See Product Data Sheets

Assembly Procedure:

1) Install #23 airport plugs with thread-locker.
2) Press pins #20 & #27 Into Pla te #4.
3) Install threaded inserts #30, #31, & #32.
4) Install #22 vent or plug with thread-locker.
5) Mount magnet #25 to piston #8 with retainer Ring #24.
6) Install #28 metric plumbing fitting ada pters.
7) Lubricate body #1 (jaw cavity & bores).
8) Lubricate & install all seals into bod y, piston, & cap.
9) Sub-assemble the #2 jaws on either side of the #6 shaft wedge with lubrica tion.
10) Insert the jaws and shaft wedge sub-assembly into body.
11) Insert piston #8 into the bod y bore and fasten it to the shaft wedge with Mounting screw # 26 using thread locker.
12) Install cap #7 into body with retaining ring #44.
13) Insert #4 bottom plate with pressed-in pins onto the body and fasten with #21 screws with thread-locker.

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon™ Based Grease | GLUE Super Bonder | Third Angle Projection



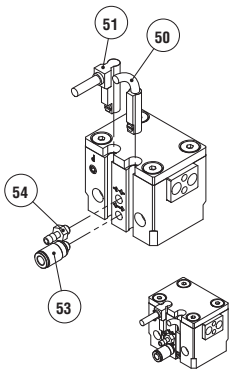
Item	Qty	Name
01	1	Body
02	2	Jaw
04	1	Bottom Plate
06	1	Shaft Wedge
07	1	Cap
08	1	Piston
20	2	Bottom Plate Locating Dowels
21	6	Bottom Plate Screws
22*	1	Breather Vent Plug (Purge)
23	4	Manifold Port Plugs
24	1	Piston Mag. Ret. Ring
25	1	Piston Magnet
26	1	Piston Mounting Screw
27	1	Shaft guide dowel pin
28*	2	Plumbing Fitting - Adapter - 1/8NPT male to 1/8BSPP female
30*	8	Threaded Inserts (Body)
31*	8	Threaded Inserts (Jaw - End Mount)
32*	4	Threaded Inserts (Jaw - Bottom Mount "-B" option only)
40	1	Cap O-ring
41	1	Piston O-ring
42	1	U-cup
43*	2	Piston Teflon Ring
44	1	Cap Retainer Ring

NOTES:*

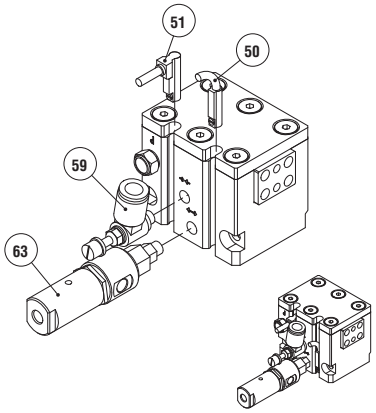
1) Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.
2) Item #30 is for size -175 and -250 only.
3) Item #31 and #32 are for size -250 only.
4) Item #22 breather vent plug is a set screw plug for sizes -047 & -056.
5) Item #43 is for size -175 and -250 only.
6) Item #28 is for metric size -175M and -250M only.

Accessory Installation & Adjustment Instructions

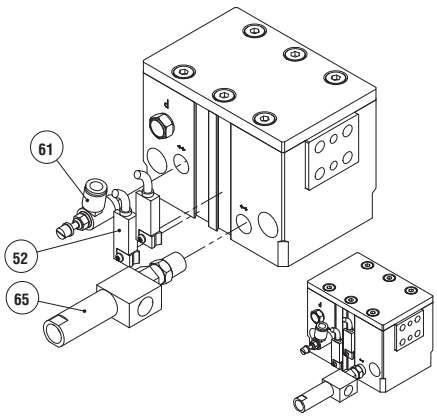
DPDS-047 & DPDS-056



DPDS-088 & DPDS-125



DPDS-175 & DPDS-250



Item	Qty	Name
50	1 or 2	Magneto Resistive Sensor (short barrel) w/Qk. Disconnect
51	1 or 2	Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect
52	1 or 2	Magneto Resistive Sensor (12mm Dovetail) w/Qk. Disconnect
53	1,2 or 3	Plumbing Fitting - M3 male to 3mm OD Push-in Style
54	1,2 or 3	Plumbing Fitting - M3 male to 2mm ID Barb Style
59	1 or 2	Adjustable Flow Control (Metric) M5 elbow - 6mm OD Push-in Style
61	1 or 2	Adjustable Flow Control (Metric) G1/8 elbow - 6mm OD Push-in Style
63	1	Fail Safe Valve (Metric) M5
65	1	Fail Safe Valve (Metric) G1/8 (1/8 BSPP)

NOTE: Other Plumbing Fittings are available for each size - Consult Factory

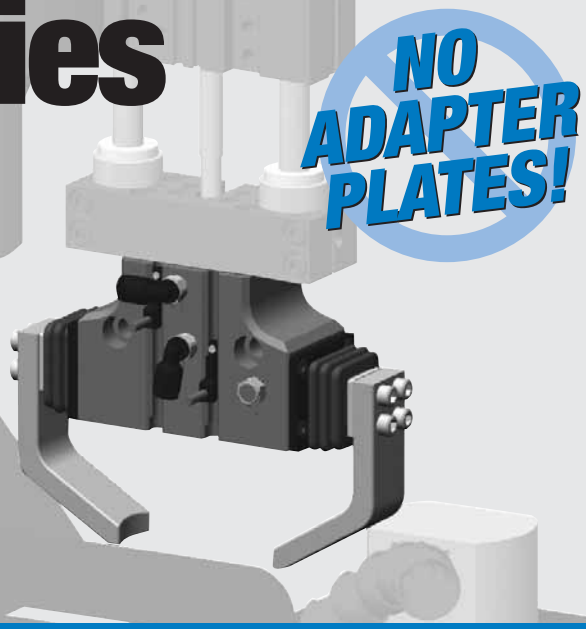
Magneto-Resistive Sensors:

1) Insert sensors #50 or #51 from either end of the profile slots and set the sensor with the integrated screw.
2) Insert sensor #52 into the dovetail slot at any point and set the sensor with the integrated screw & locking shoe.

Plumbing Fittings:

1) M3 plumbing fittings #53 & #54 can be used in any airport or purge/scavenge port.
2) Flow controls can be inserted and used in any open or closed airport to help control the stroke actuation.
3) Fail-safe valve can be used in either the open or closed airport to help limit the possibility of dropping the part if air pressure is lost.

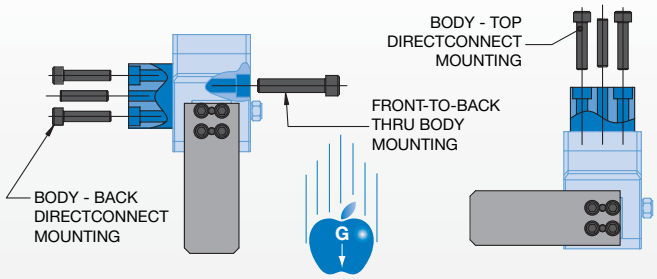
Parallel Grippers - DPDL DIRECTCONNECT™ Modular Series



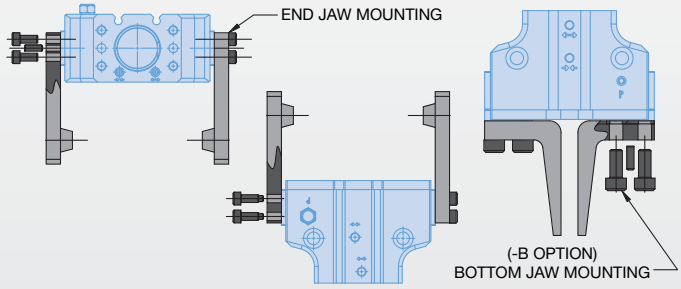
- **Multiple mounting locations:** DIRECTCONNECT™ tapped and dowel mounting on top and back of body.
- **Thru body mounting:** Front-to-back thru-body mounting.
- **Multiple air port positions:** Tapped air ports on front, top, and back sides are standard.
- **Manifold air porting:** Top and back air ports can be manifold o-ring sealed.
- **Front purge/scavenge port:** Negative pressure used as a scavenge port used for cleanroom applications. Positive pressure used as a purge port to repel contaminants in harsh environment. Port can also be used for lubrication.
- **Sensing:** Full range adjustable magneto resistive sensors.
- **Different strokes:** All gripper sizes are available in 3 different strokes.
- **Multiple jaw styles:** All sizes available with end mounts jaws as standard or bottom mount jaws as an option.
- **True sealed jaw option:** Rugged integral rubber boot seals the unit against harsh environments. Designed to be used in machine coolant and metal chip environment applications.
- **Long finger applications:** Rigid design and full body support of jaws allows for longer finger lengths.

Mounting Information:

Grippers can be mounted & operated in any orientation



Body mounts with screws and locates with slip fit dowel pins for accuracy



Fingers attach with screws and locate on jaws by keying and/or dowel pins. Fingers can be mounted in any orientation with respect to the jaw.

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**20-100 psi**	**1.5-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	
Air Quality Requirements		
Air Filtration	**40 Micron or Better**	
Air Lubrication	**Not Necessary***	
Air Humidity	**Low Moisture Content (dry)**	
Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~300° F**	**-30°~150° C**
Maintenance Specifications†		
Expected Life		
Normal Application	**5 million cycles**	
w/ Preventative Maintenance	**10+ million cycles***	
Field Repairable	**Yes**	
Seal Repair Kits Available	**Yes**	
-E Option Seals Jaw Rubber Boot Specifications		
Boot Material	**60 Durometer Buna-N (Nitrile)**	
Temperature Rating (boot only)	**-20°~250° F**	**-30°~120° C**
Compatible Chemicals:	**Water, Coolant, Petroleum Oils, Silicone Lubricants, Dilute Acids & Alkalis, Hydraulic Fluid, Transmission Fluid**	
Non-Compatible Chemicals:	**Ozone, Ketones, Strong Acids, Brake Fluid**	
Example Applications:	**Grinding Dust, Machine Chip & Coolant, Painting, Paper Dust, Washdown Applications**	

Application Restrictions
Applications where mechanism lubricant could cause contamination (use **-E** sealed jaw option)

*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features

Hard Coat Anodize
The body and bottom plate have hard-coat anodize 60RC with Teflon® impregnation

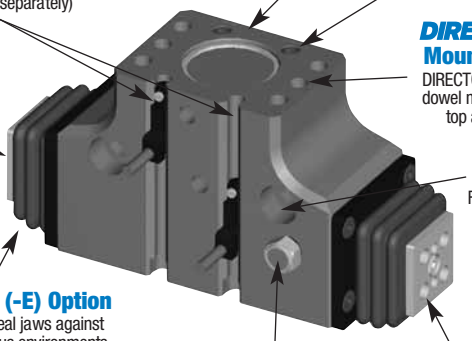
High Temperature
Optional Viton® seals are available for high temperature applications

Multiple Air Port Locations
3 standard airport locations (front, back, & top)

Sensor Mounting Slots
Standard mounting slots for magneto resistive (sensors sold separately)

One Piece Body
One piece lightweight aircraft quality aluminum body

Manifold Air Ports
Back & top air ports can be O-ring manifold sealed to eliminate air lines



DIRECTCONNECT Mounting Patterns
DIRECTCONNECT™ tapped & dowel mounting surfaces on top and back of body

Extremely Rugged Design
Jaws are supported throughout the length of the body

Thru-Body Mounting
Front-to-back thru C'bores for socket head cap screw mounting

Sealed Jaws (-E) Option
Buna-N bellows seal jaws against damaging hazardous environments (machining chips & coolant, grinding dust, paper mill environments, etc.)

Bottom Jaw Mounting (-B) Option
For alternate finger mounting (standard side mount jaws shown)

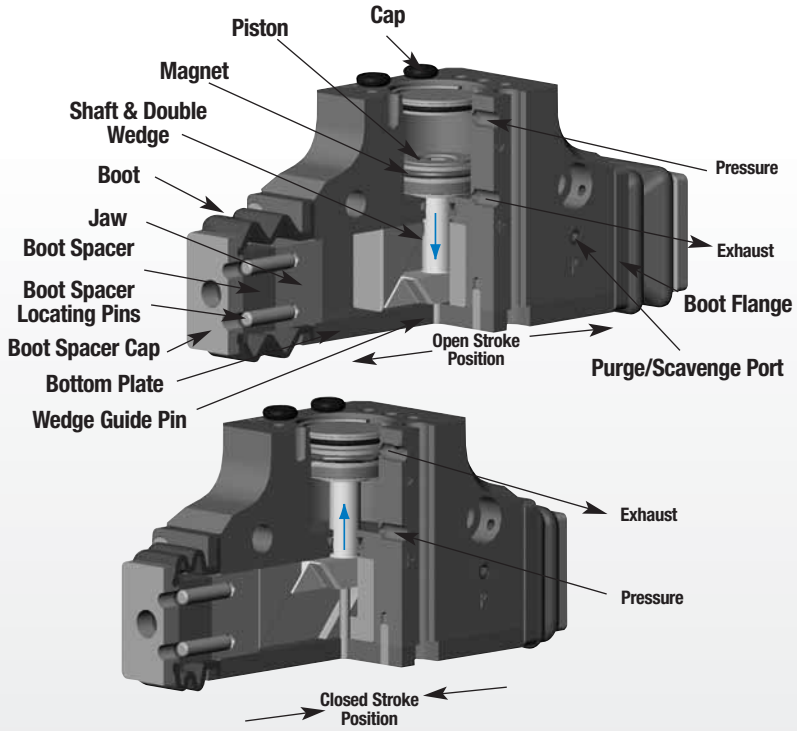
Purge/Scavenge Port
Used with a vacuum for clean room environments or positive pressure with harsh environments

Corrosion Resistant Hardware (-S) or Clean Room (-CR) Options
Both options have stainless and brass hardware. Clean room option uses clean room grade greases

Dowel Holes
Slip fit dowel pin holes in body and jaws

Jaw Components
Hardened and precision ground steel for minimum jaw play with hard plating for wear resistance and long life

Operating Principle



- A double acting piston is connected by a shaft to a double-sided wedge.
- The wedge slides in a slot located in each of the jaws converting vertical motion of the wedge into horizontal synchronous motion of the ja ws.
- The large surface area of the wedge minimizes friction wear.
- This gripper is suitable for internal or external gripping and can be mounted in any orientation.

U.S. Patent # 5,125,708
Designed and manufactured in the USA

Style -DPDL Parallel Gripper

Size -047M

Style:	**DPDL-047M**	
Stroke:	0.38 in.	9.5 mm
Grip Force:	14 lbs.	62 N
Weight:	0.186 lbs.	0.08 Kg

-B Bottom Jaw Mount Shown

See Page 1.114

Style -DPDL Parallel Gripper

Size -056M

Style:	**DPDL-056M**	
Stroke:	0.50 in.	12.7 mm
Grip Force:	22 lbs.	98 N
Weight:	0.315 lbs.	0.14 Kg

-B Bottom Jaw Mount Shown

See Page 1.116

Style -DPDL Parallel Gripper

Size -088M

Style:	**DPDL-088M**	
Stroke:	0.75 in.	19.1 mm
Grip Force:	50 lbs.	222 N
Weight:	0.95 lbs.	0.43 Kg

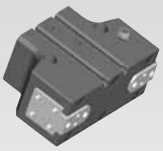
-B Bottom Jaw Mount Shown

See Page 1.118

Style -DPDL Parallel Gripper

Size -125M

Style:	**DPDL-125M**	
Stroke:	1.00 in.	25.4 mm
Grip Force:	100 lbs.	445 N
Weight:	1.99 lbs.	0.90 Kg



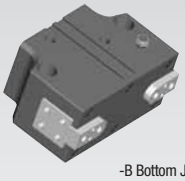
-B Bottom Jaw Mount Shown

See Page 1.120

Style -DPDL Parallel Gripper

Size -175M

Style:	**DPDL-175M**	
Stroke:	1.50 in.	38.1 mm
Grip Force:	200 lbs.	890 N
Weight:	6.02 lbs.	2.73 Kg



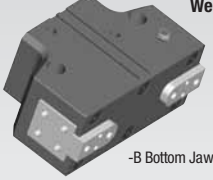
-B Bottom Jaw Mount Shown

See Page 1.122

Style -DPDL Parallel Gripper

Size -250M

Style:	**DPDL-250M**	
Stroke:	2.000 in.	50.8 mm
Grip Force:	400 lbs.	1779 N
Weight:	12.04 lbs.	5.46 Kg

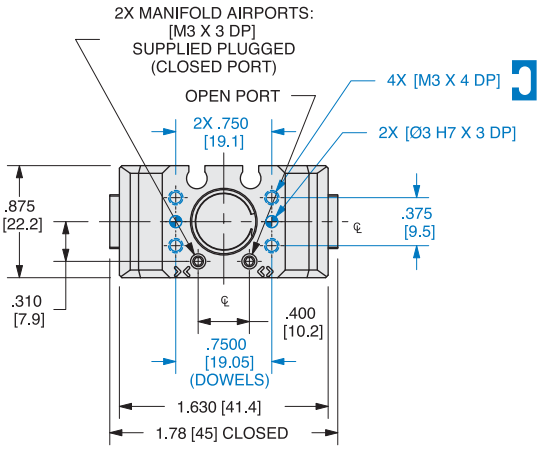


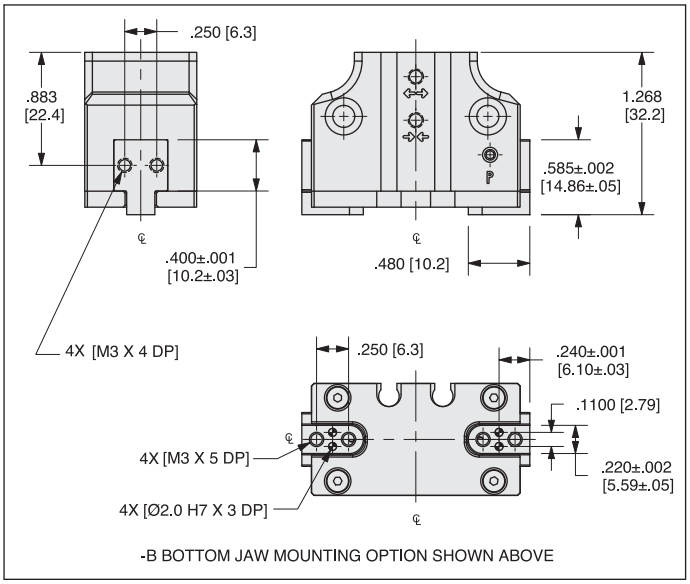
-B Bottom Jaw Mount Shown

See Page 1.124

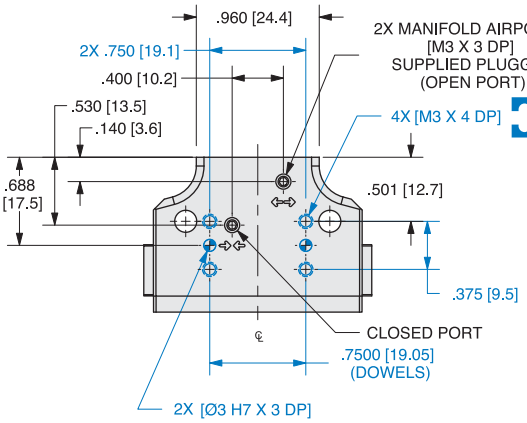
PARALLEL GRIPPER DPDL-047M
DIRECTCONNECT™ MODULAR SERIES

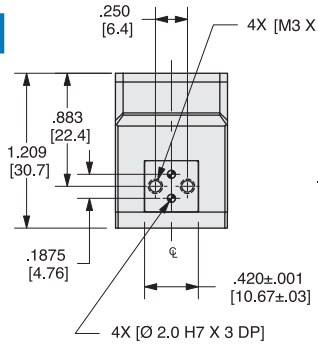
Robohand

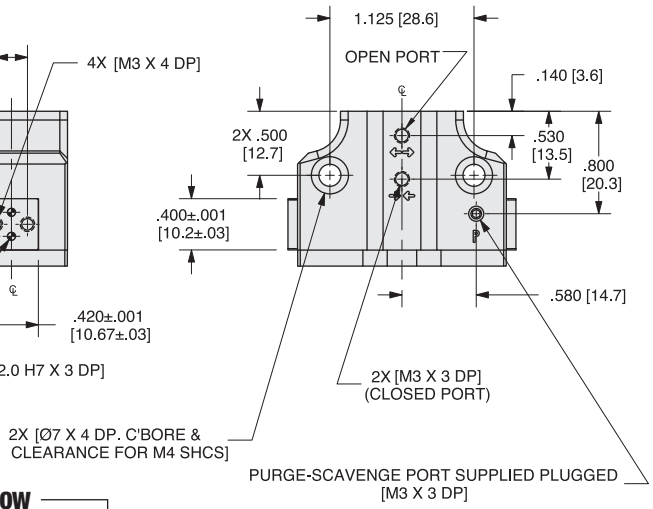




-B BOTTOM JAW MOUNTING OPTION SHOWN ABOVE







UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | STROKE | JAW SEAL** | HARDWARE

DPDL-047M - [ ] - B - E - [ ] - V

JAW MOUNTING | VITON® SEALS

STROKE	**038**	.38" [9.5mm]
	025	.25" [6.4mm]
	019	.19" [4.8mm]
JAW MOUNTING	**B**	Bottom jaw mounting
	__	Leave blank for end jaw mounting (standard)
JAW BOOT SEAL**	**E**	Buna-N rubber bellows
HARDWARE	**S**	Corrosion resistant
	CR	Corrosion resistant assembled with clean room grade grease
	__	Leave blank for alloy hardware (standard)
VITON®†	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DPDL-047M-038-E-CR-V

Ex: DPDL-047M Gripper, Metric, 6.4mm Stroke, Jaw Boot Seal, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor with Quick Disconnect*	**OHSN-017**	**1 or 2**
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disc.*	**OHSP-011**	**1 or 2**
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disc.*	**OHSN-011**	**1 or 2**
Quick Disconnect Cable (2 meters long)*	**CABL-010**	**1 or 2**
Quick Disconnect Cable (5 meters long)*	**CABL-013**	**1 or 2**

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-185**	**1**
Viton® Seal Repair Kit	**SLKT-185V**	**1**
Manifold Seal Kit (Viton®)	**SLKT-197V**	**1**
Sealed Jaw Boot Replacement (1 boot, Buna-N only)	**SLKT-191**	**1 or 2**
Plumbing Fitting - M3 male to 3mm OD Tube Push-in Style	**PLFT-021**	**1 or 2**
Plumbing Fitting - M3 male to 2mm ID Tube Barb Style	**PLFT-022**	**1 or 2**

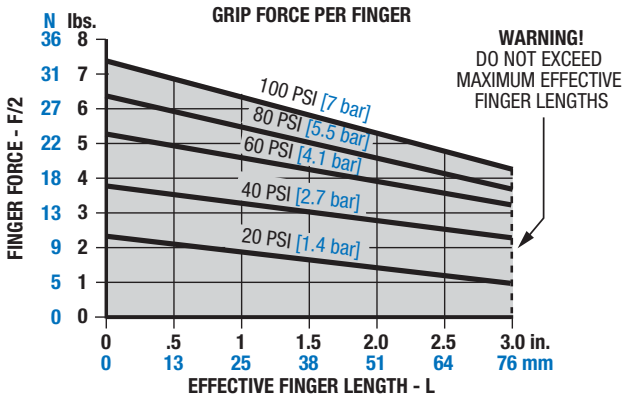
* Sensor and cable sold separately

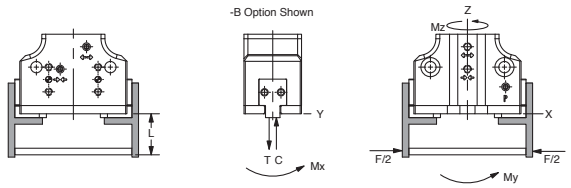
** -E Jaw Boot Seal option is not available with -B Bottom Jaw Mounting option. See Accessory Mounting Data Section for -E Seal option dimensions.

† -E Rubber Jaw Boot seals are Buna-N (Nitrile) material even if the -V Viton® gripper option is selected. See page 1.66 for more detailed technical specifications on the -E option Jaw Boot material

DIRECTCONNECT™

Loading Information





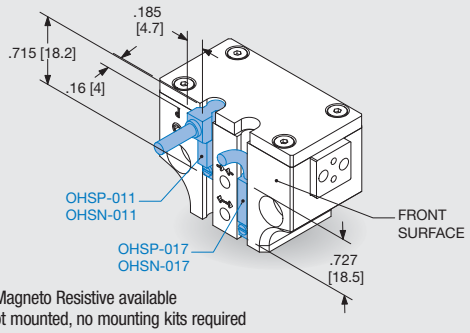
Loading Capacity†	Static	Dynamic
DPDL-047M		
Maximum Tensile **T**	100 lbs. [445 N]	15 lbs. [67 N]
Maximum Compressive **C**	150 lbs. [668 N]	25 lbs. [111 N]
Maximum Moment **Mx**	90 in.-lbs. [10 Nm]	15 in.-lbs. [2 Nm]
Maximum Moment **My**	90 in.-lbs. [10 Nm]	15 in.-lbs. [2 Nm]
Maximum Moment **Mz**	90 in.-lbs. [10 Nm]	15 in.-lbs. [2 Nm]
DPDL-047M-B (Bottom Jaw Mounting Option)		
Maximum Tensile **T**	80 lbs. [356 N]	12 lbs. [53 N]
Maximum Compressive **C**	120 lbs. [534 N]	20 lbs. [89 N]
Maximum Moment **Mx**	72 in.-lbs. [8 Nm]	12 in.-lbs. [1 Nm]
Maximum Moment **My**	72 in.-lbs. [8 Nm]	12 in.-lbs. [1 Nm]
Maximum Moment **Mz**	72 in.-lbs. [8 Nm]	12 in.-lbs. [1 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDL-047M	
Total Rated Grip Force **F** @ 100 psi, 7 bar	14 lbs.	62 N
Maximum Stroke	0.38 in.	9.5 mm
Maximum Operating Pressure Range	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Max Pressure for Purge Port: (Standard)	20 psi	1.4 bar
with **-E** Jaw Boot	4 psi	0.25 bar
Cylinder Bore Ø	0.469 in.	11.9 mm
Displacement	0.038 in³.	0.6 cm³

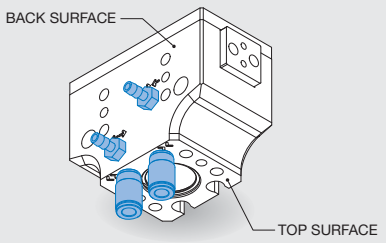
Specifications (cont.)	DPDL-047M	
Weight	0.186 lbs.	0.08 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.20 sec.	0.20 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



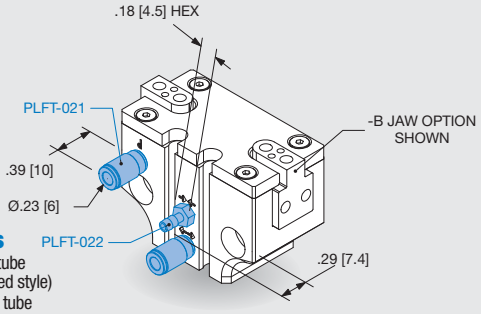
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



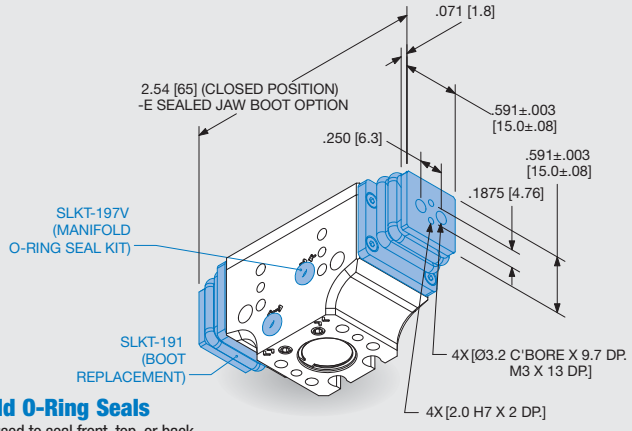
Multiple Air Port Locations

- 3 standard M3 air port locations (front, top, and back surface)
- Top and Back air ports are plugged as standard



Plumbing Fittings

- M3 fitting for 2mm I.D. tube (PLFT-022 straight barbed style)
- M3 fitting for 3mm O.D. tube (PLFT-021 straight tube push-in style)
- M3 fittings can be used in any airport including the front purge/scavenge port



Manifold O-Ring Seals

- Can be used to seal front, top, or back air ports and front purge/scavenge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: Ø.215 [Ø5.5] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

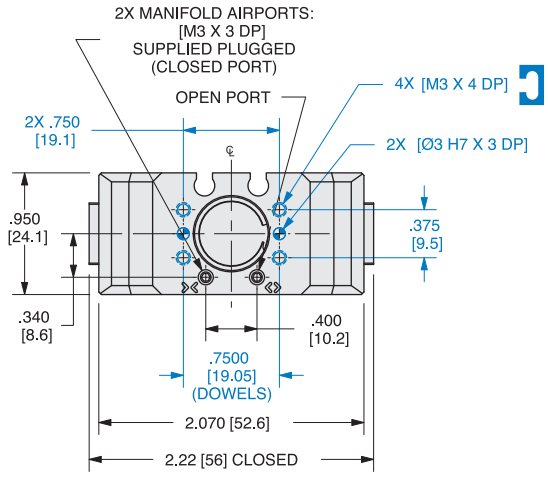
Sealed Jaw Boot Option

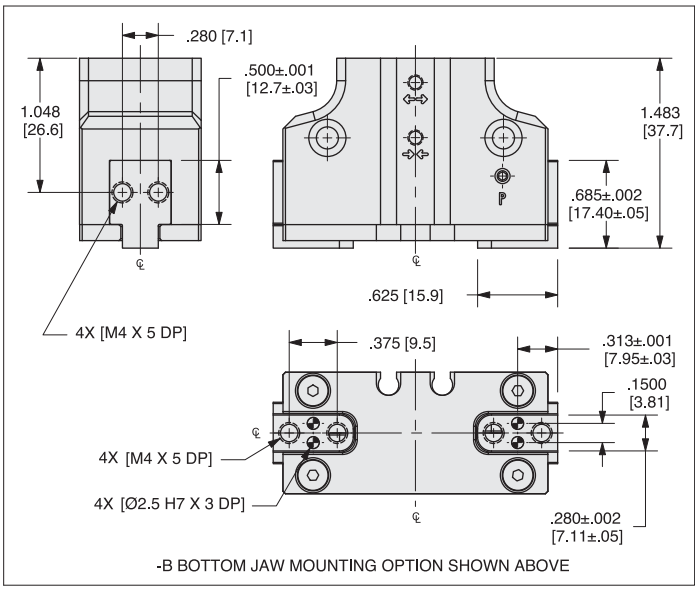
- Can be used to seal jaws in harsh environments
- Boot replacement available as an accessory
- Boot material is Buna-N (Nitrile) only

DIRECTCONNECT™

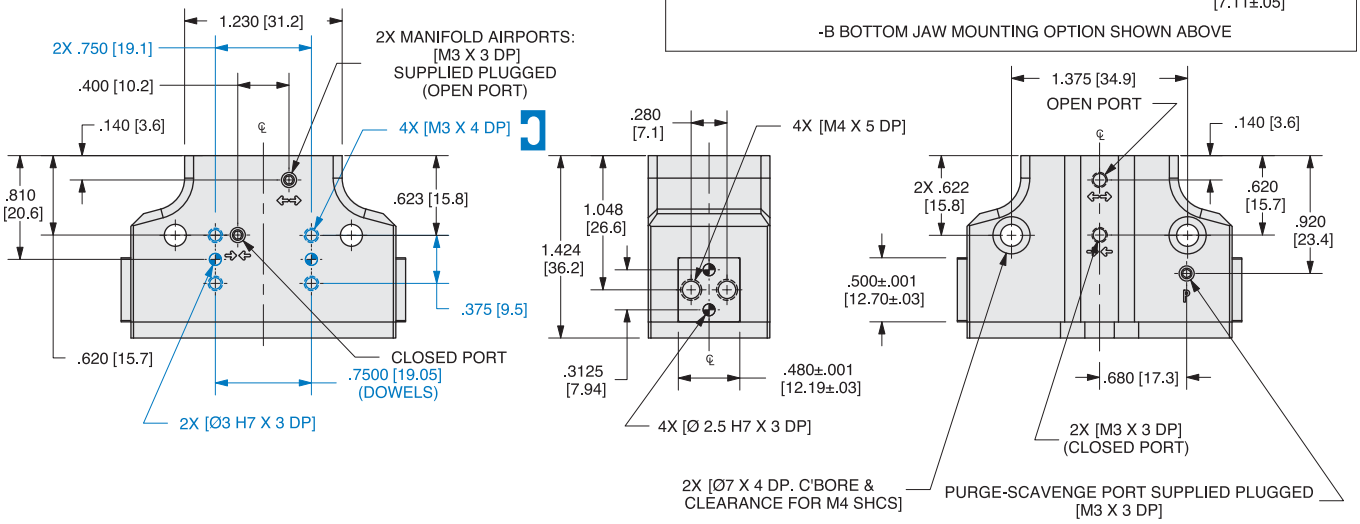
PARALLEL GRIPPER DPDL-056M
DIRECTCONNECT™ MODULAR SERIES

Robohand





-B BOTTOM JAW MOUNTING OPTION SHOWN ABOVE



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | STROKE | JAW SEAL** | HARDWARE

DPDL-056M - [ ] - [B] - [E] - [ ] - [V]

JAW MOUNTING | VITON® SEALS

STROKE	**050**	.50" [12.7mm]
	038	.38" [9.5mm]
	025	.25" [6.4mm]
JAW MOUNTING	**B**	Bottom jaw mounting
	__	Leave blank for end jaw mounting (standard)
JAW BOOT SEAL**	**E**	Buna-N rubber bellows
HARDWARE	**S**	Corrosion resistant
	CR	Corrosion resistant assembled with clean room grade grease
	__	Leave blank for alloy hardware (standard)
VITON®†	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DPDL-056M-038-E-CR-V

Ex: DPDL-056M Gripper, Metric, 12.7mm Stroke, Jaw Boot Seal, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor with Quick Disconnect*	**OHSN-017**	**1 or 2**
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disc.*	**OHSP-011**	**1 or 2**
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disc.*	**OHSN-011**	**1 or 2**
Quick Disconnect Cable (2 meters long)*	**CABL-010**	**1 or 2**
Quick Disconnect Cable (5 meters long)*	**CABL-013**	**1 or 2**

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-186**	**1**
Viton® Seal Repair Kit	**SLKT-186V**	**1**
Manifold Seal Kit (Viton®)	**SLKT-197V**	**1**
Sealed Jaw Boot Replacement (1 boot, Buna-N only)	**SLKT-192**	**1 or 2**
Plumbing Fitting - M3 male to 3mm OD Tube Push-in Style	**PLFT-021**	**1 or 2**
Plumbing Fitting - M3 male to 2mm ID Tube Barb Style	**PLFT-022**	**1 or 2**

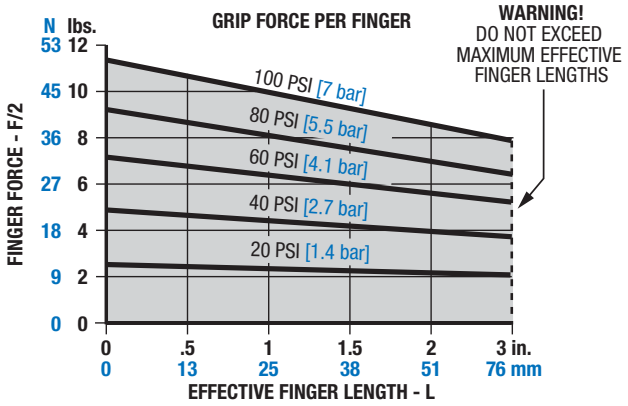
* Sensor and cable sold separately

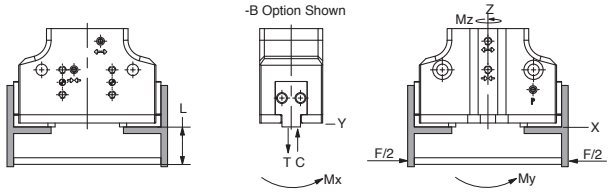
** -E Jaw Boot Seal option is not available with -B Bottom Jaw Mounting option. See Accessory Mounting Data Section for -E Seal option dimensions.

† -E Rubber Jaw Boot seals are Buna-N (Nitrile) material even if the -V Viton® gripper option is selected. See page 1.66 for more detailed technical specifications on the -E option Jaw Boot material

DIRECTCONNECT™

Loading Information





Loading Capacity†

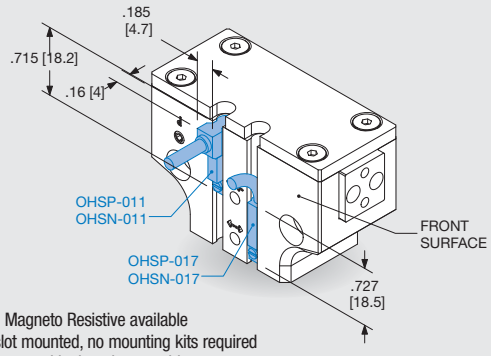
	Static	Dynamic
DPDL-056M		
Maximum Tensile **T**	125 lbs. [556 N]	25 lbs. [111 N]
Maximum Compressive **C**	250 lbs. [1113 N]	25 lbs. [111 N]
Maximum Moment M_X	115 in.-lbs. [13 Nm]	20 in.-lbs. [2 Nm]
Maximum Moment M_Y	115 in.-lbs. [13 Nm]	20 in.-lbs. [2 Nm]
Maximum Moment M_Z	115 in.-lbs. [13 Nm]	20 in.-lbs. [2 Nm]
DPDL-056M-B (Bottom Jaw Mounting Option)		
Maximum Tensile **T**	100 lbs. [445 N]	20 lbs. [89 N]
Maximum Compressive **C**	200 lbs. [890 N]	20 lbs. [89 N]
Maximum Moment M_X	92 in.-lbs. [10 Nm]	16 in.-lbs. [2 Nm]
Maximum Moment M_Y	92 in.-lbs. [10 Nm]	16 in.-lbs. [2 Nm]
Maximum Moment M_Z	92 in.-lbs. [10 Nm]	16 in.-lbs. [2 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDL-056M	
Total Rated Grip Force **F** @ 100 psi, 7 bar	22 lbs.	98 N
Maximum Stroke	0.50 in.	12.7 mm
Maximum Operating Pressure Range	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Max Pressure for Purge Port: (Standard)	20 psi	1.4 bar
with **-E** Jaw Boot	4 psi	0.25 bar
Cylinder Bore Ø	0.563 in.	14.3 mm
Displacement	0.074 in^3.	1.2 cm^3

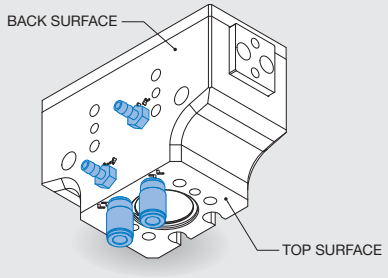
Specifications (cont.)	DPDL-056M	
Weight	0.315 lbs.	0.14 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.25 sec.	0.25 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



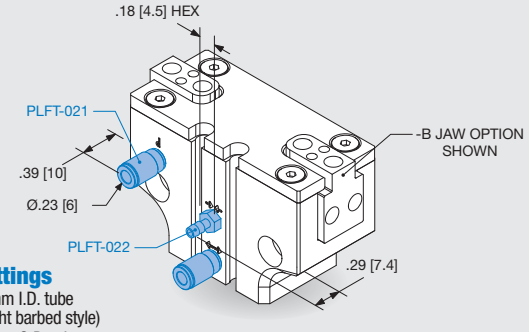
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



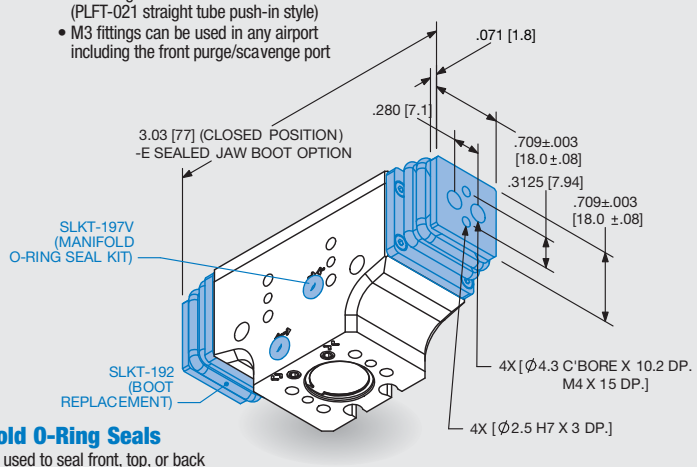
Multiple Air Port Locations

- 3 standard M3 air port locations (front, top, and back surface)
- Top and Back air ports are plugged as standard



Plumbing Fittings

- M3 fitting for 2mm I.D. tube (PLFT-022 straight barbed style)
- M3 fitting for 3mm O.D. tube (PLFT-021 straight tube push-in style)
- M3 fittings can be used in any airport including the front purge/scavenge port



Manifold O-Ring Seals

- Can be used to seal front, top, or back air ports and front purge/scavenge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: Ø.215 [Ø5.5] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

Sealed Jaw Boot Option

- Can be used to seal jaws in harsh environments
- Boot replacement available as an accessory
- Boot material is Buna-N (Nitrile) only

PARALLEL GRIPPER DPDL-088M
DIRECTCONNECT™ MODULAR SERIES

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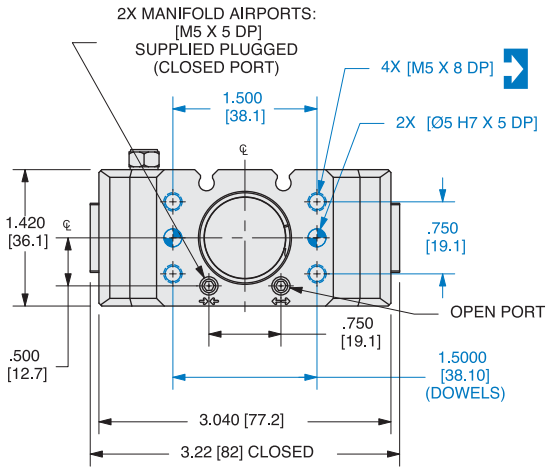
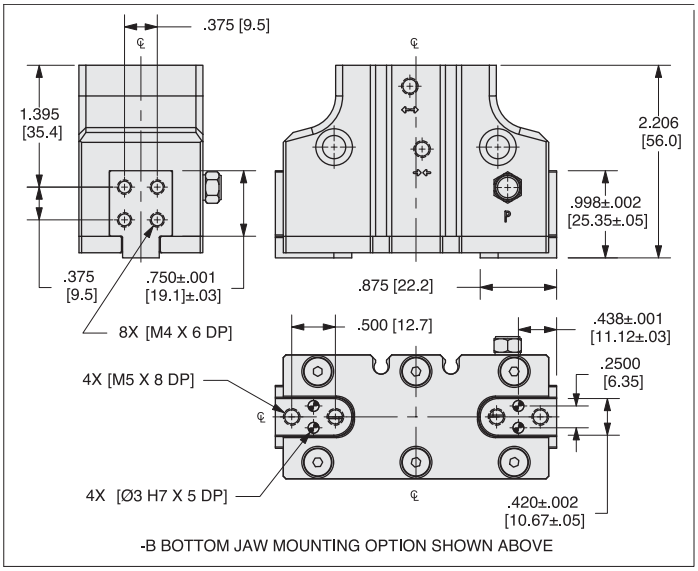
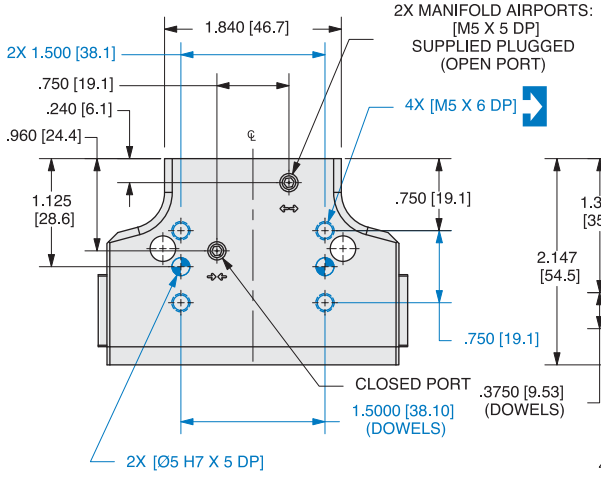
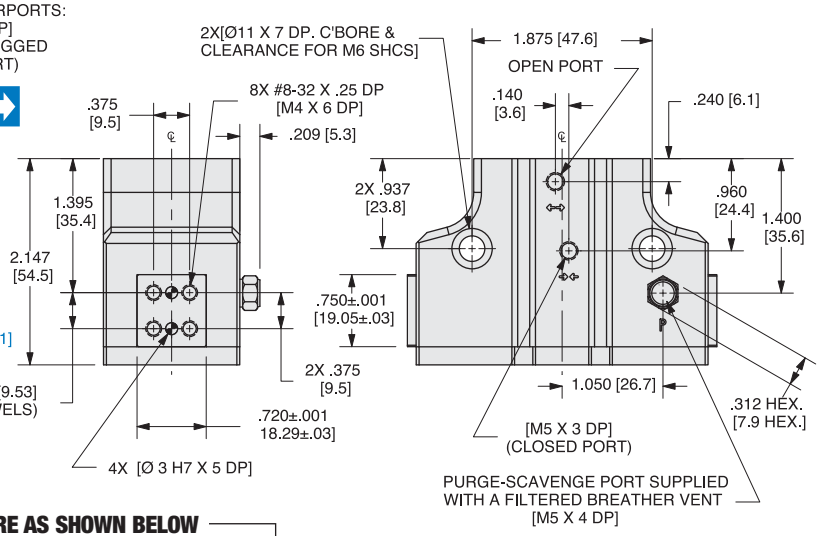




-B BOTTOM JAW MOUNTING OPTION SHOWN ABOVE





UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | STROKE | JAW SEAL** | HARDWARE

DPDL-088M - [ ] - B - E - [ ] - V

JAW MOUNTING | VITON® SEALS

STROKE	**075** **050** **038**	.75" [19.1mm] .50" [12.7mm] .38" [9.5mm]
JAW MOUNTING	**B** __	Bottom jaw mounting Leave blank for end jaw mounting (standard)
JAW BOOT SEAL**	**E**	Buna-N rubber bellows
HARDWARE	**S** **CR** __	Corrosion resistant Corrosion resistant assembled with clean room grade grease Leave blank for alloy hardware (standard)
VITON®†	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DPDL-088M-050-E-CR-V

Ex: DPDL-088M Gripper, Metric, 12.7mm Stroke, Jaw Boot Seal, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor with Quick Disconnect*	**OHSN-017**	**1 or 2**
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disc.*	**OHSP-011**	**1 or 2**
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disc.*	**OHSN-011**	**1 or 2**
Quick Disconnect Cable (2 meters long)*	**CABL-010**	**1 or 2**
Quick Disconnect Cable (5 meters long)*	**CABL-013**	**1 or 2**

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-187**	**1**
Viton® Seal Repair Kit	**SLKT-187V**	**1**
Manifold Seal Kit (Viton®)	**SLKT-199V**	**1**
Sealed Jaw Boot Replacement (1 boot, Buna-N only)	**SLKT-193**	**1 or 2**
Adjustable Flow Control M5 Elbow - 6mm OD Push-in (Metric)	**VLVF-008**	**1 or 2**
Fail Safe Valve M5	**OFSV-004**	**1 or 2**

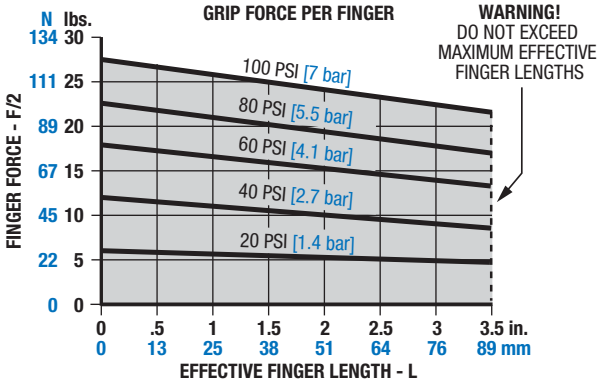
* Sensor and cable sold separately

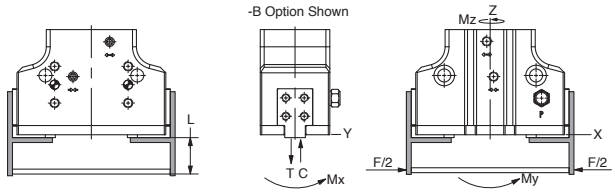
** -E Jaw Boot Seal option is not available with -B Bottom Jaw Mounting option. See Accessory Mounting Data Section for -E Seal option dimensions.

† -E Rubber Jaw Boot seals are Buna-N (Nitrile) material even if the -V Viton® gripper option is selected. See page 1.66 for more detailed technical specifications on the -E option Jaw Boot material

DIRECTCONNECT™

Loading Information





Loading Capacity†

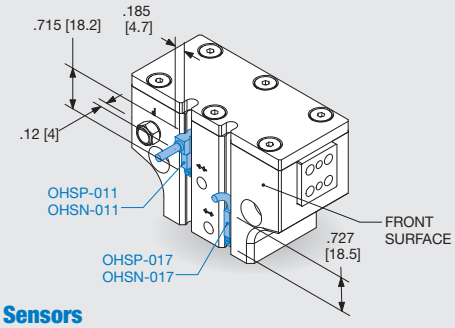
	Static	Dynamic
DPDL-088M		
Maximum Tensile **T**	350 lbs. [1558 N]	40 lbs. [178 N]
Maximum Compressive **C**	650 lbs. [2893 N]	40 lbs. [178 N]
Maximum Moment **Mx**	250 in.-lbs. [28 Nm]	40 in.-lbs. [5 Nm]
Maximum Moment **My**	250 in.-lbs. [28 Nm]	40 in.-lbs. [5 Nm]
Maximum Moment **Mz**	250 in.-lbs. [28 Nm]	40 in.-lbs. [5 Nm]
DPDL-088M-B (Bottom Jaw Mounting Option)		
Maximum Tensile **T**	280 lbs. [1246 N]	32 lbs. [142 N]
Maximum Compressive **C**	520 lbs. [2314 N]	32 lbs. [142 N]
Maximum Moment **Mx**	200 in.-lbs. [23 Nm]	32 in.-lbs. [4 Nm]
Maximum Moment **My**	200 in.-lbs. [23 Nm]	32 in.-lbs. [4 Nm]
Maximum Moment **Mz**	200 in.-lbs. [23 Nm]	32 in.-lbs. [4 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDL-088M	
Total Rated Grip Force **F** @ 100 psi, 7 bar	50 lbs.	222 N
Maximum Stroke	0.75 in.	19.1 mm
Maximum Operating Pressure Range	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Max Pressure for Purge Port: (Standard)	20 psi	1.4 bar
with **-E** Jaw Boot	4 psi	0.25 bar
Cylinder Bore Ø	0.875 in.	22.2 mm
Displacement	0.269 in^3.	4.4 cm^3

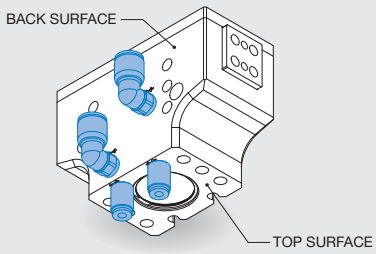
Specifications (cont.)	DPDL-088M	
Weight	0.95 lbs.	0.43 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.30 sec.	0.30 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)

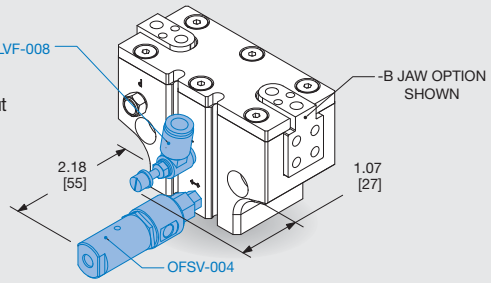


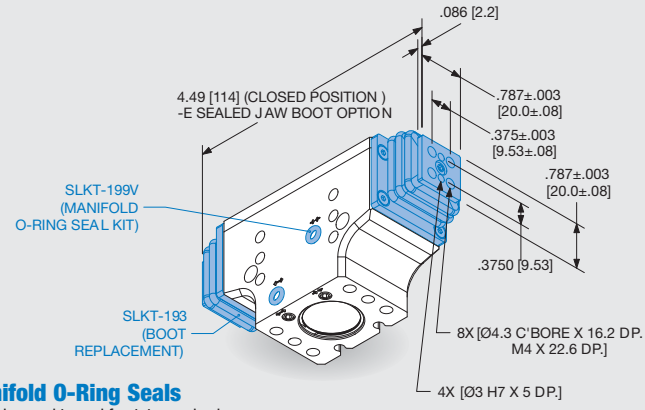
Multiple Air Port Locations

- 3 standard M5 air port locations (front, top, and back surface)
- Top and Back air ports are plugged as standard

Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time:
  - Available for 6mm O.D. tubing
- Failsafe valve:
  - For applications where it is critical that the part being gripped not be dropped if air pressure is lost:
  - Can mount directly to gripper or in-line with plumbing to gripper
  - M5 air port
- Consult factory for additional plumbing fittings





Manifold O-Ring Seals

- Can be used to seal front, top, or back air ports and front purge/scavenge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: Ø.290 [Ø7.4] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

Sealed Jaw Boot Option

- Can be used to seal jaws in harsh environments
- Boot replacement available as an accessory
- Boot material is Buna-N (Nitrile) only

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PARALLEL GRIPPER DPDL-125M
DIRECTCONNECT™ MODULAR SERIES

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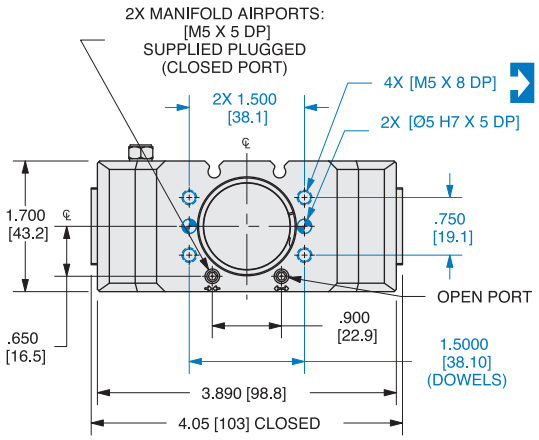
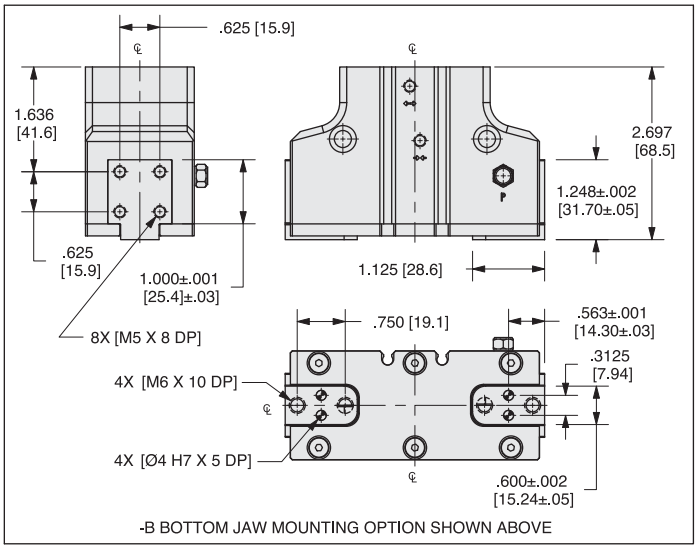
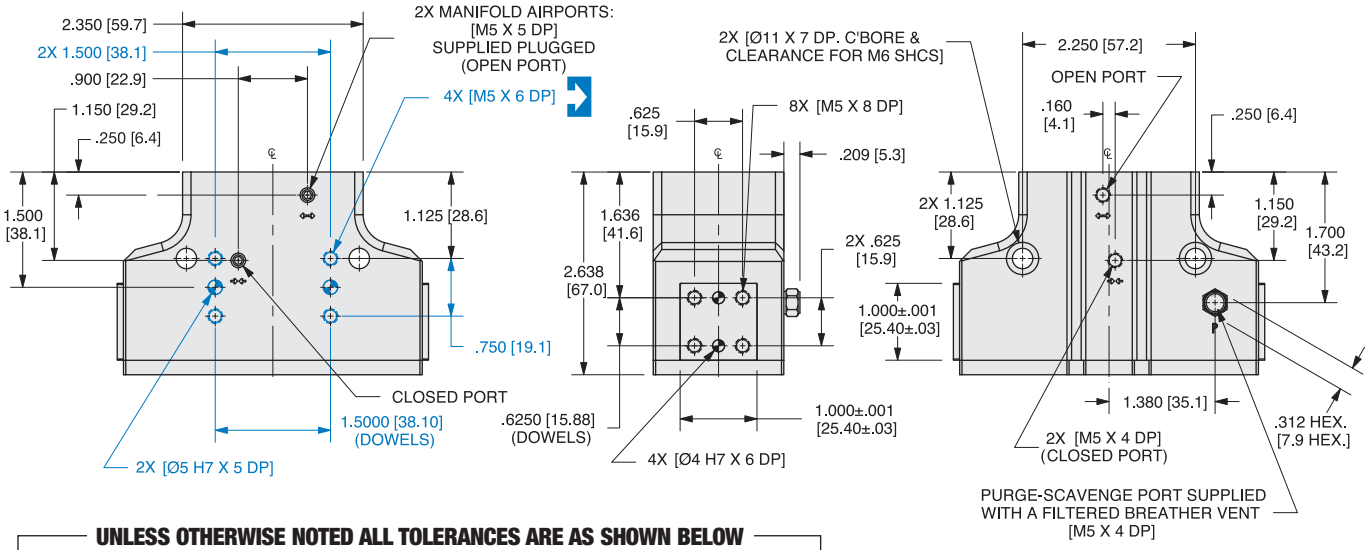






UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | STROKE | JAW SEAL** | HARDWARE

DPDL-125M - [ ] - B - E - [ ] - V

JAW MOUNTING | VITON® SEALS

STROKE	**100**	1.00" [25.4mm]
	075	.75" [19.1mm]
	050	.50" [12.7mm]
JAW MOUNTING	**B**	Bottom jaw mounting
	__	Leave blank for end jaw mounting (standard)
JAW BOOT SEAL**	**E**	Buna-N rubber bellows
HARDWARE	**S**	Corrosion resistant
	CR	Corrosion resistant assembled with clean room grade grease
	__	Leave blank for alloy hardware (standard)
VITON®†	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DPDL-125M-075-E-CR-V

Ex: DPDL-125M Gripper, Metric, 25.4mm Stroke, Jaw Boot Seal, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor with Quick Disconnect*	**OHSN-017**	**1 or 2**
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disc.*	**OHSP-011**	**1 or 2**
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disc.*	**OHSN-011**	**1 or 2**
Quick Disconnect Cable (2 meters long)*	**CABL-010**	**1 or 2**
Quick Disconnect Cable (5 meters long)*	**CABL-013**	**1 or 2**

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-188**	**1**
Viton® Seal Repair Kit	**SLKT-188V**	**1**
Manifold Seal Kit (Viton®)	**SLKT-199V**	**1**
Sealed Jaw Boot Replacement (1 boot, Buna-N only)	**SLKT-194**	**1 or 2**
Adj. Flow Control M5 Elbow - 6mm OD Push-in (Metric)	**VLVF-008**	**1 or 2**
Fail Safe Valve M5	**OFSV-004**	**1 or 2**

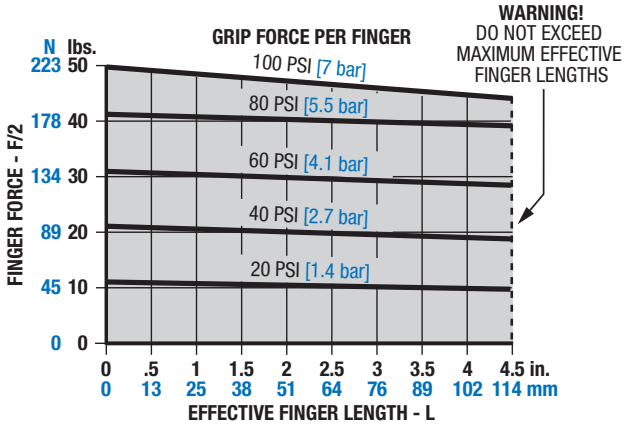
* Sensor and cable sold separately

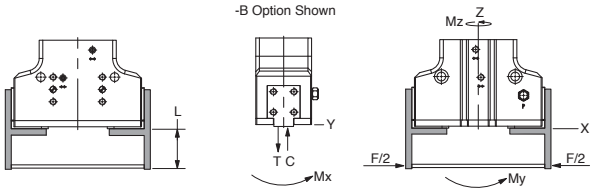
** -E Jaw Boot Seal option is not available with -B Bottom Jaw Mounting option. See Accessory Mounting Data Section for -E Seal option dimensions.

† -E Rubber Jaw Boot seals are Buna-N (Nitrile) material even if the -V Viton® gripper option is selected. See page 1.66 for more detailed technical specifications on the -E option Jaw Boot material

DIRECTCONNECT™

Loading Information





Loading Capacity†

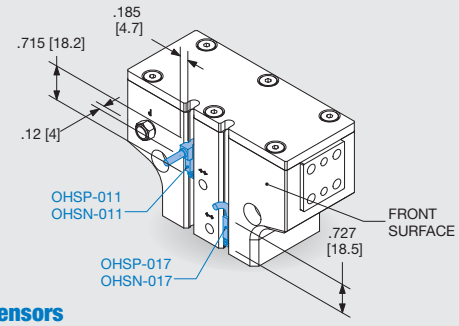
	Static	Dynamic
DPDL-125M		
Maximum Tensile **T**	675 lbs. [3004 N]	90 lbs. [401 N]
Maximum Compressive **C**	1300 lbs. [5785 N]	90 lbs. [401 N]
Maximum Moment **Mx**	650 in.-lbs. [73 Nm]	110 in.-lbs. [12 Nm]
Maximum Moment **My**	650 in.-lbs. [73 Nm]	110 in.-lbs. [12 Nm]
Maximum Moment **Mz**	650 in.-lbs. [73 Nm]	110 in.-lbs. [12 Nm]
DPDL-125M-B (Bottom Jaw Mounting Option)		
Maximum Tensile **T**	540 lbs. [2403 N]	72 lbs. [320 N]
Maximum Compressive **C**	1040 lbs. [4628 N]	72 lbs. [320 N]
Maximum Moment **Mx**	520 in.-lbs. [59 Nm]	88 in.-lbs. [10 Nm]
Maximum Moment **My**	520 in.-lbs. [59 Nm]	88 in.-lbs. [10 Nm]
Maximum Moment **Mz**	520 in.-lbs. [59 Nm]	88 in.-lbs. [10 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDL-125M	
Total Rated Grip Force **F** @ 100 psi, 7 bar	100 lbs.	445 N
Maximum Stroke	1.00 in.	25.4 mm
Maximum Operating Pressure Range	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Max Pressure for Purge Port: (Standard)	20 psi	1.4 bar
with **-E** Jaw Boot	4 psi	0.25 bar
Cylinder Bore Ø	1.250 in.	31.8 mm
Displacement	0.730 in³.	12.0 cm³

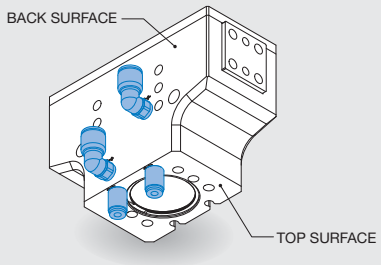
Specifications (cont.)	DPDL-125M	
Weight	1.99 lbs.	0.90 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.50 sec.	0.50 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)

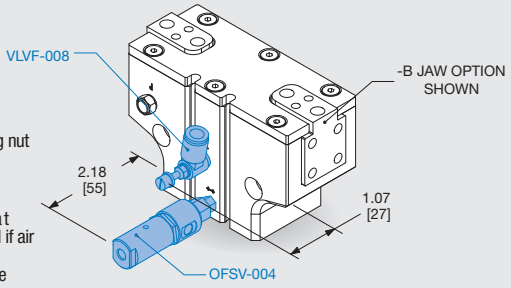


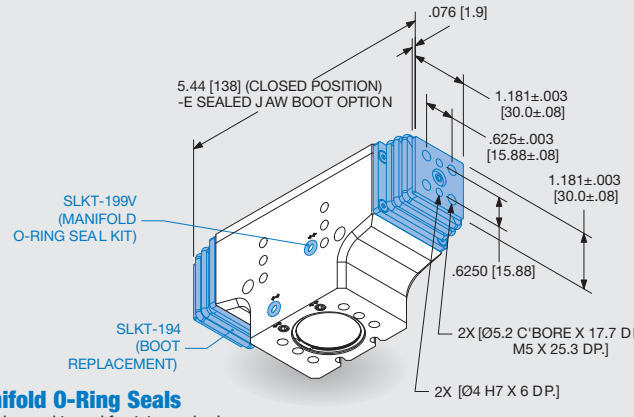
Multiple Air Port Locations

- 3 standard M5 air port locations (front, top, and back surface)
- Top and Back air ports are plugged as standard

Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time:
  - Available for 6mm O.D. tubing
- Failsafe valve:
  - For applications where it is critical that the part being gripped not be dropped if air pressure is lost
  - Can mount directly to gripper or in-line with plumbing to gripper
  - M5 air port
- Consult factory for additional plumbing fittings





Manifold O-Ring Seals

- Can be used to seal front, top, or back air ports and front purge/scavenge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: Ø.290 [Ø7.4] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

Sealed Jaw Boot Option

- Can be used to seal jaws in harsh environments
- Boot replacement available as an accessory
- Boot material is Buna-N (Nitrile) only

DIRECTCONNECT™

PARALLEL GRIPPER DPDL-175M
DIRECTCONNECT™ MODULAR SERIES

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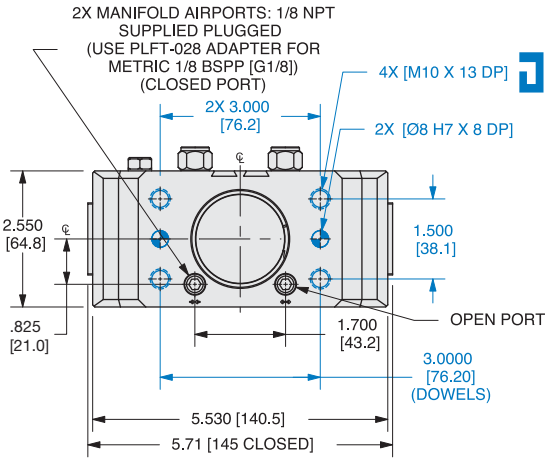
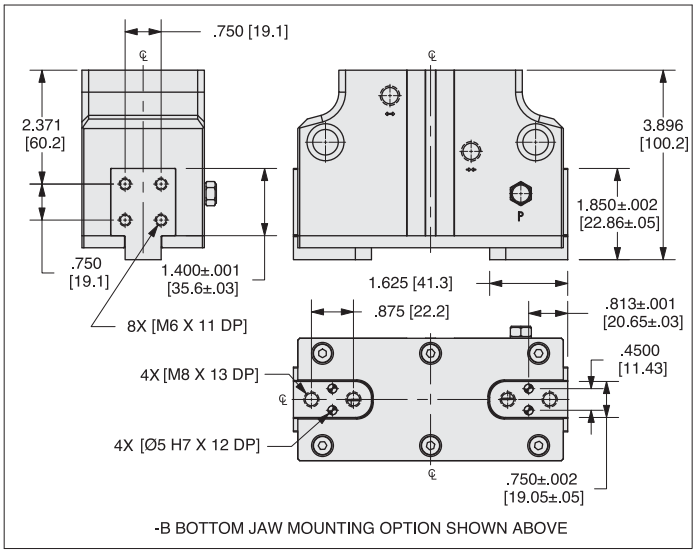
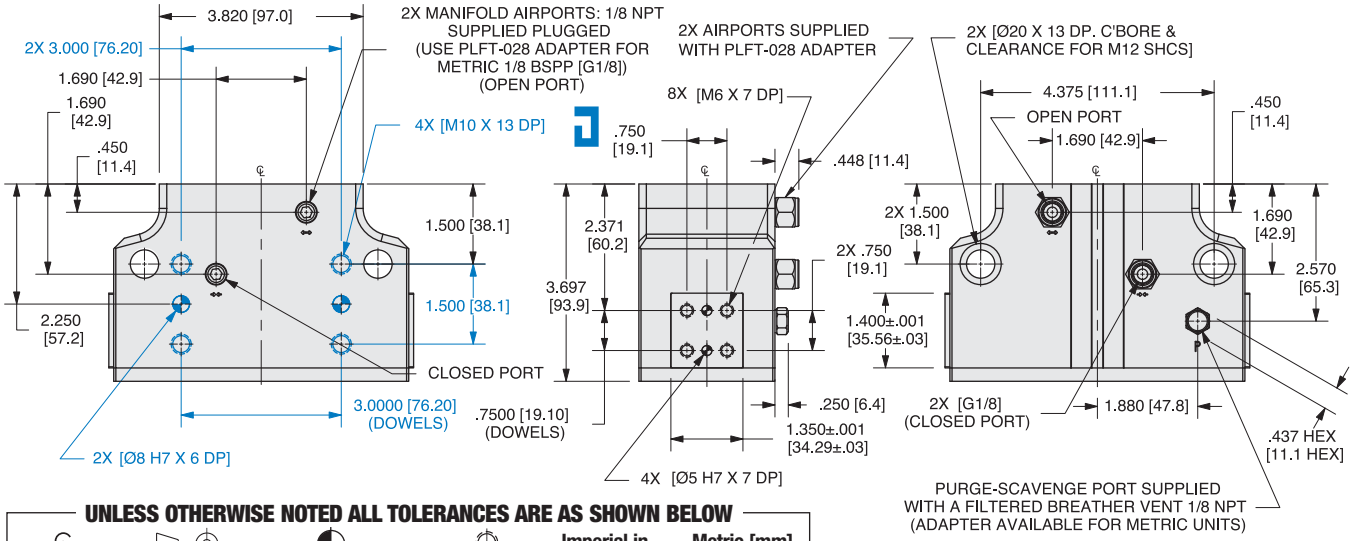




-B BOTTOM JAW MOUNTING OPTION SHOWN ABOVE



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | STROKE | JAW SEAL** | HARDWARE

DPDL-175M - [ ] - B - E - [ ] - V

JAW MOUNTING | VITON® SEALS

STROKE	**150**	1.50" [38.1mm]
	100	1.00" [25.4mm]
	075	.75" [19.1mm]
JAW MOUNTING	**B**	Bottom jaw mounting
	__	Leave blank for end jaw mounting (standard)
JAW BOOT SEAL**	**E**	Buna-N rubber bellows
HARDWARE	**S**	Corrosion resistant
	CR	Corrosion resistant assembled with clean room grade grease
	__	Leave blank for alloy hardware (standard)
VITON®†	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DPDL-175M-100-E-CR-V

Ex: DPDL-175M Gripper, Metric, 19.1mm Stroke, Jaw Boot Seal, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor w/12mm Dovetail*	**OHSP-015**	**1 or 2**
NPN Magneto Resistive Sensor w/12mm Dovetail*	**OHSN-015**	**1 or 2**
Quick Disconnect Cable (2 meters long)*	**CABL-010**	**1 or 2**
Quick Disconnect Cable (5 meters long)*	**CABL-013**	**1 or 2**

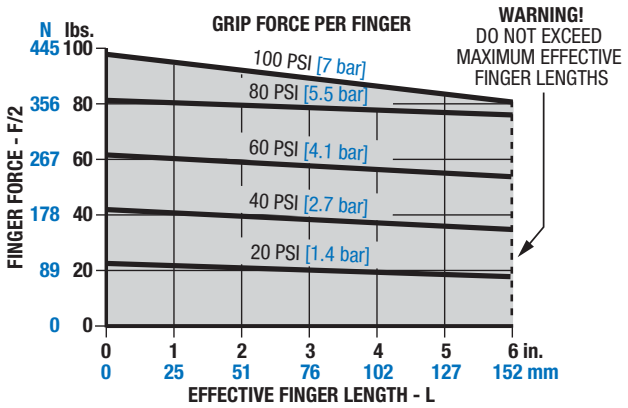
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-189**	**1**
Viton® Seal Repair Kit	**SLKT-189V**	**1**
Manifold Seal Kit (Viton®)	**SLKT-201V**	**1**
Sealed Jaw Boot Replacement (1 boot, Buna-N only)	**SLKT-195**	**1 or 2**
Adj. Flow Control G 1/8 Elbow - 6mm OD Push-in (Metric)	**VLVF-005**	**1 or 2**
Fail Safe Valve G 1/8 (1/8 BSPP) (Metric)	**OFSV-005**	**1**
Plumbing Fitting Adapter - 1/8 NPT Male to 1/8 BSPP Female	**PLFT-028**	**1 or 2**

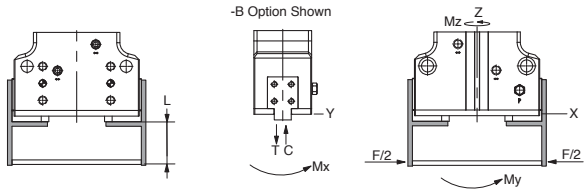
* Sensor and cable sold separately

** -E Jaw Boot Seal option is not available with -B Bottom Jaw Mounting option. See Accessory Mounting Data Section for -E Seal option dimensions.

† -E Rubber Jaw Boot seals are Buna-N (Nitrile) material even if the -V Viton® gripper option is selected. See page 1.66 for more detailed technical specifications on the -E option Jaw Boot material

Loading Information





Loading Capacity†

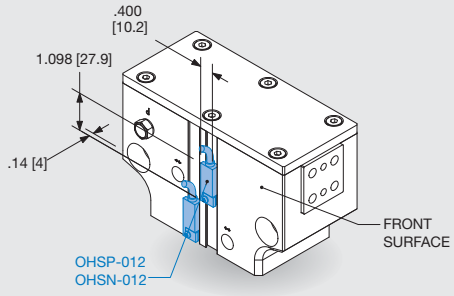
	Static	Dynamic
DPDL-175M		
Maximum Tensile **T**	1150 lbs. [5118 N]	175 lbs. [779 N]
Maximum Compressive **C**	2300 lbs. [10235 N]	175 lbs. [779 N]
Maximum Moment **Mx**	1150 in.-lbs. [130 Nm]	190 in.-lbs. [22 Nm]
Maximum Moment **My**	1150 in.-lbs. [130 Nm]	190 in.-lbs. [22 Nm]
Maximum Moment **Mz**	1150 in.-lbs. [130 Nm]	190 in.-lbs. [22 Nm]
DPDL-175M-B (Bottom Jaw Mounting Option)		
Maximum Tensile **T**	920 lbs. [4094 N]	140 lbs. [623 N]
Maximum Compressive **C**	1840 lbs. [8188 N]	140 lbs. [623 N]
Maximum Moment **Mx**	920 in.-lbs. [104 Nm]	152 in.-lbs. [17 Nm]
Maximum Moment **My**	920 in.-lbs. [104 Nm]	152 in.-lbs. [17 Nm]
Maximum Moment **Mz**	920 in.-lbs. [104 Nm]	152 in.-lbs. [17 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDL-175M	
Total Rated Grip Force **F** @ 100 psi, 7 bar	200 lbs.	890 N
Maximum Stroke	1.50 in.	38.1 mm
Maximum Operating Pressure Range	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Max Pressure for Purge Port: (Standard)	20 psi	1.4 bar
with **-E** Jaw Boot	4 psi	0.25 bar
Cylinder Bore Ø	1.750 in.	44.5 mm
Displacement	2.150 in³.	35.2 cm³

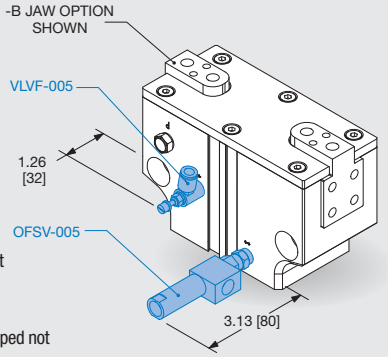
Specifications (cont.)	DPDL-175M	
Weight	6.02 lbs.	2.73 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.70 sec.	0.70 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



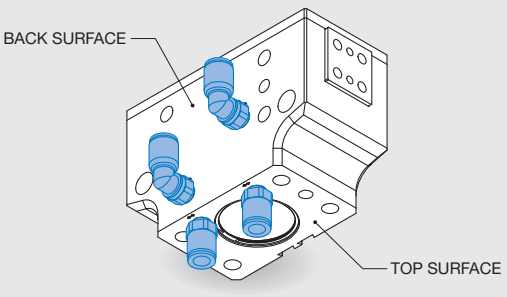
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are dovetail slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



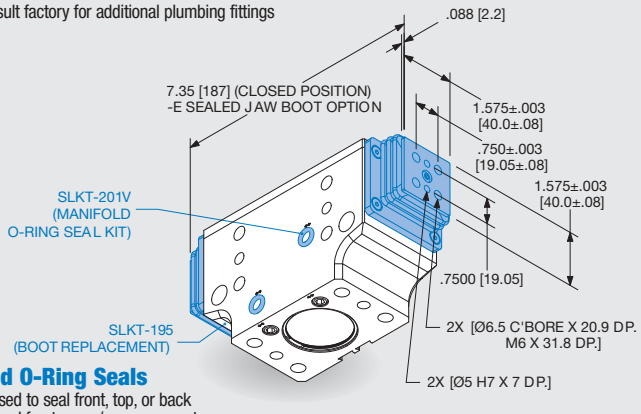
Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm O.D. tubing
- Failsafe valve for applications:
  - Where it is critical that the part being gripped not be dropped if air pressure is lost:
  - Can mount directly to gripper or in-line with plumbing to gripper
  - G1/8 (BSPP) air port
- Consult factory for additional plumbing fittings



Multiple Air Port Locations

- 3 standard 1/8NPT air port locations (front, top, and back surface)
- Use PLFT-028 adapter (1/8NPT male to G1/8 (BSPP) female)
- Top and Back air ports are plugged as standard



Manifold O-Ring Seals

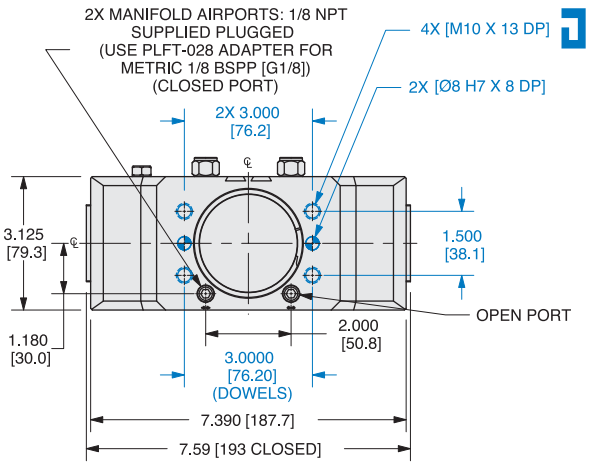
- Can be used to seal front, top, or back air ports and front purge/scavenge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: Ø.515 [Ø13.1] X .088±.002 [2.24±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

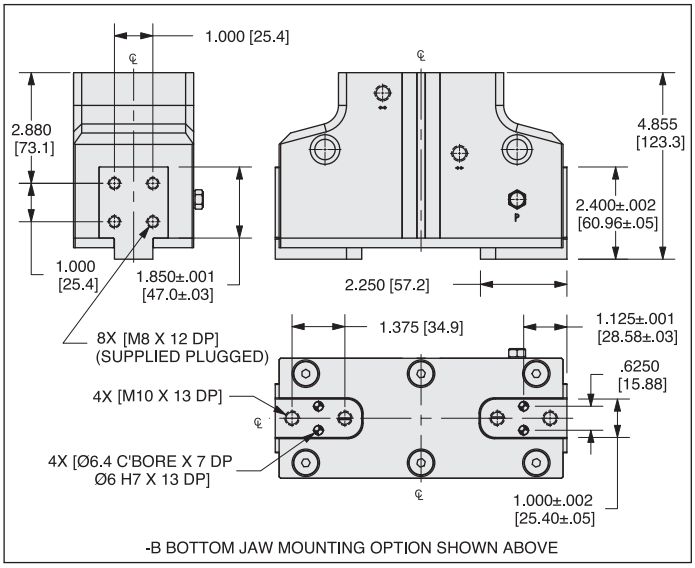
Sealed Jaw Boot Option

- Can be used to seal jaws in harsh environments
- Boot replacement available as an accessory
- Boot material is Buna-N (Nitrile) only

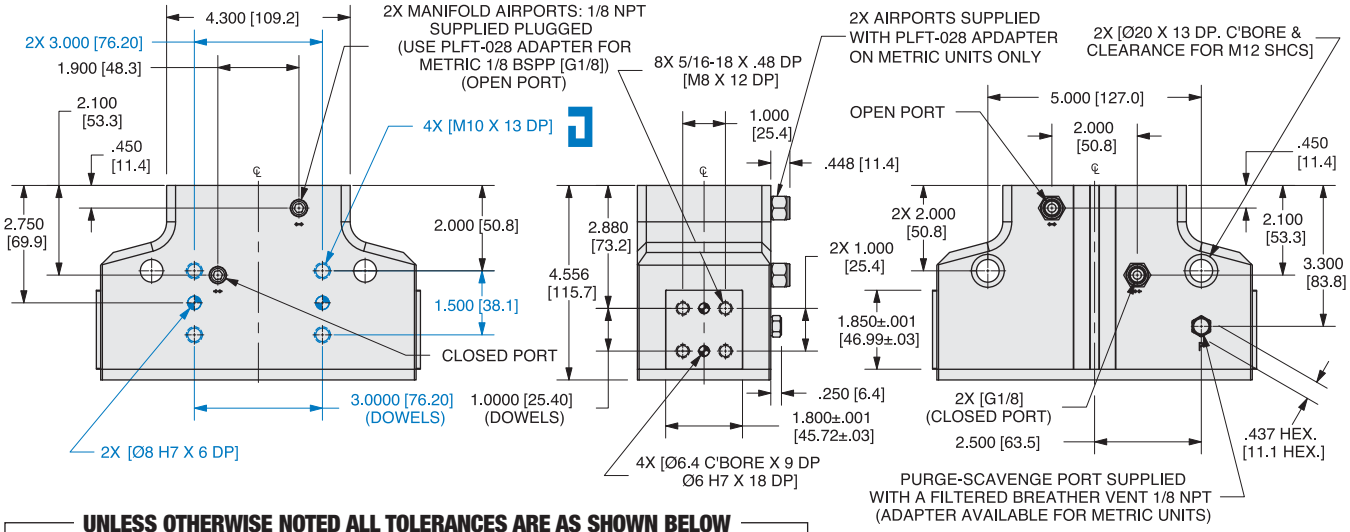
DIRECTCONNECT™

PARALLEL GRIPPER DPDL-250M
DIRECTCONNECT™ MODULAR SERIES





-B BOTTOM JAW MOUNTING OPTION SHOWN ABOVE



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | STROKE | JAW SEAL** | HARDWARE

DPDL-250M - [ ] - B - E - [ ] - V

JAW MOUNTING | VITON® SEALS

STROKE	**200**	2.00" [50.8mm]
	150	1.50" [38.1mm]
	100	1.00" [25.4mm]
JAW MOUNTING	**B**	Bottom jaw mounting
	__	Leave blank for end jaw mounting (standard)
JAW BOOT SEAL**	**E**	Buna-N rubber bellows
HARDWARE	**S**	Corrosion resistant
	CR	Corrosion resistant assembled with clean room grade grease
	__	Leave blank for alloy hardware (standard)
VITON®†	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DPDL-250M-150-E-CR-V

Ex: DPDL-250M Gripper, Metric, 38.1mm Stroke, Jaw Boot Seal, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor w/12mm Dovetail*	**OHSP-015**	**1 or 2**
NPN Magneto Resistive Sensor w/12mm Dovetail*	**OHSN-015**	**1 or 2**
Quick Disconnect Cable (2 meters long)*	**CABL-010**	**1 or 2**
Quick Disconnect Cable (5 meters long)*	**CABL-013**	**1 or 2**

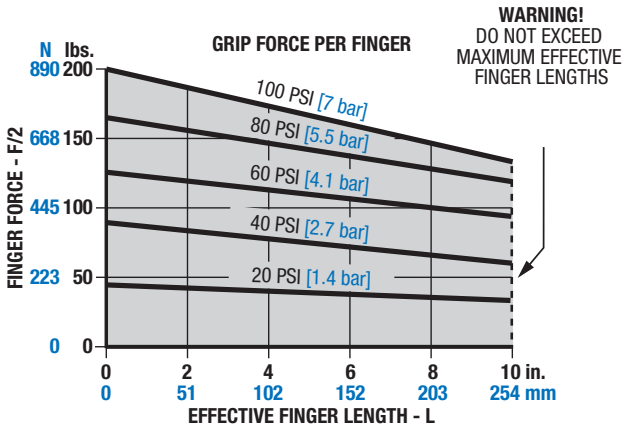
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-190**	**1**
Viton® Seal Repair Kit	**SLKT-190V**	**1**
Manifold Seal Kit (Viton®)	**SLKT-201V**	**1**
Sealed Jaw Boot Replacement (1 boot, Buna-N only)	**SLKT-196**	**1 or 2**
Adj. Flow Control G 1/8 Elbow - 6mm OD Push-in (Metric)	**VLVF-005**	**1 or 2**
Fail Safe Valve G 1/8 (1/8 BSPP) (Metric)	**OFSV-005**	**1**
Plumbing Fitting Adapter - 1/8 NPT Male to 1/8 BSPP Female	**PLFT-028**	**1 or 2**

* Sensor and cable sold separately

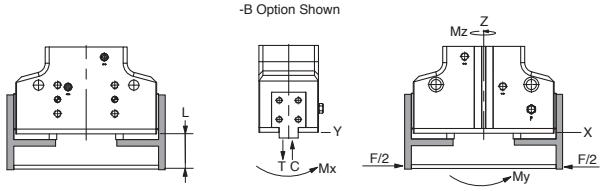
** -E Jaw Boot Seal option is not available with -B Bottom Jaw Mounting option. See Accessory Mounting Data Section for -E Seal option dimensions.

† -E Rubber Jaw Boot seals are Buna-N (Nitrile) material even if the -V Viton® gripper option is selected. See page 1.66 for more detailed technical specifications on the -E option Jaw Boot material

Loading Information



-B Option Shown



Loading Capacity†

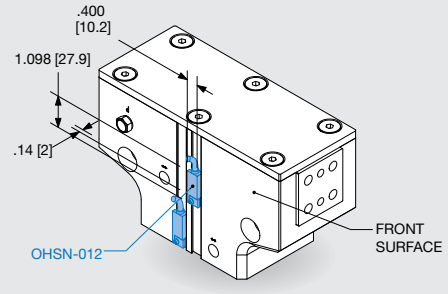
	Static	Dynamic
DPDL-250M		
Maximum Tensile **T**	2150 lbs. [9568 N]	275 lbs. [1224 N]
Maximum Compressive **C**	4300 lbs. [19135 N]	275 lbs. [1224 N]
Maximum Moment **Mx**	3000 in.-lbs. [339 Nm]	350 in.-lbs. [40 Nm]
Maximum Moment **My**	3000 in.-lbs. [339 Nm]	350 in.-lbs. [40 Nm]
Maximum Moment **Mz**	3000 in.-lbs. [339 Nm]	350 in.-lbs. [40 Nm]
DPDL-250M-B (Bottom Jaw Mounting Option)		
Maximum Tensile **T**	1720 lbs. [7654 N]	220 lbs. [979 N]
Maximum Compressive **C**	3440 lbs. [15308 N]	220 lbs. [979 N]
Maximum Moment **Mx**	2400 in.-lbs. [271 Nm]	280 in.-lbs. [32 Nm]
Maximum Moment **My**	2400 in.-lbs. [271 Nm]	280 in.-lbs. [32 Nm]
Maximum Moment **Mz**	2400 in.-lbs. [271 Nm]	280 in.-lbs. [32 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDL-250M	
Total Rated Grip Force **F** @ 100 psi, 7 bar	400 lbs.	1779 N
Maximum Stroke	2.00 in.	50.8 mm
Maximum Operating Pressure Range	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Max Pressure for Purge Port: (Standard)	20 psi	1.4 bar
with **-E** Jaw Boot	4 psi	0.25 bar
Cylinder Bore Ø	2.500 in.	63.5 mm
Displacement	5.850 in^3	95.9 cm^3

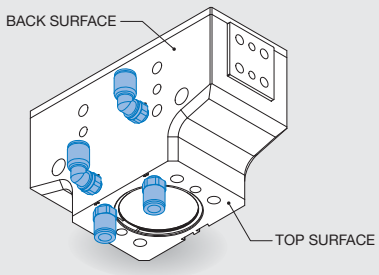
Specifications (cont.)	DPDL-250M	
Weight	12.04 lbs.	5.46 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.90 sec.	0.90 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



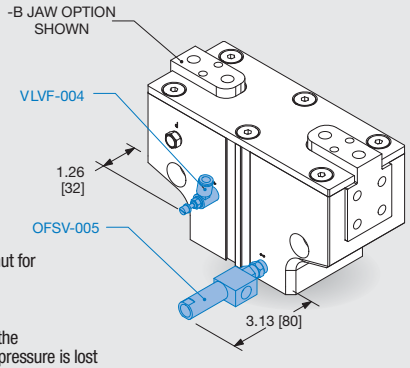
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are dovetail slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



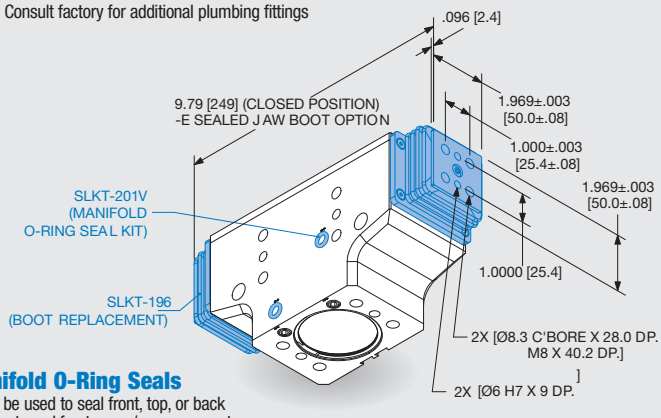
Multiple Air Port Locations

- 3 standard 1/8NPT air port locations (front, top, and back surface)
- Use PLFT-028 adapter (1/8NPT male to G1/8 (BSPP) female)
- Top and Back air ports are plugged as standard



Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm O.D. tubing
- Failsafe valve:
  - For applications where it is critical that the part being gripped not be dropped if air pressure is lost
  - Can mount directly to gripper or in-line with plumbing to gripper
  - G1/8 (BSPP) air port
- Consult factory for additional plumbing fittings



Manifold O-Ring Seals

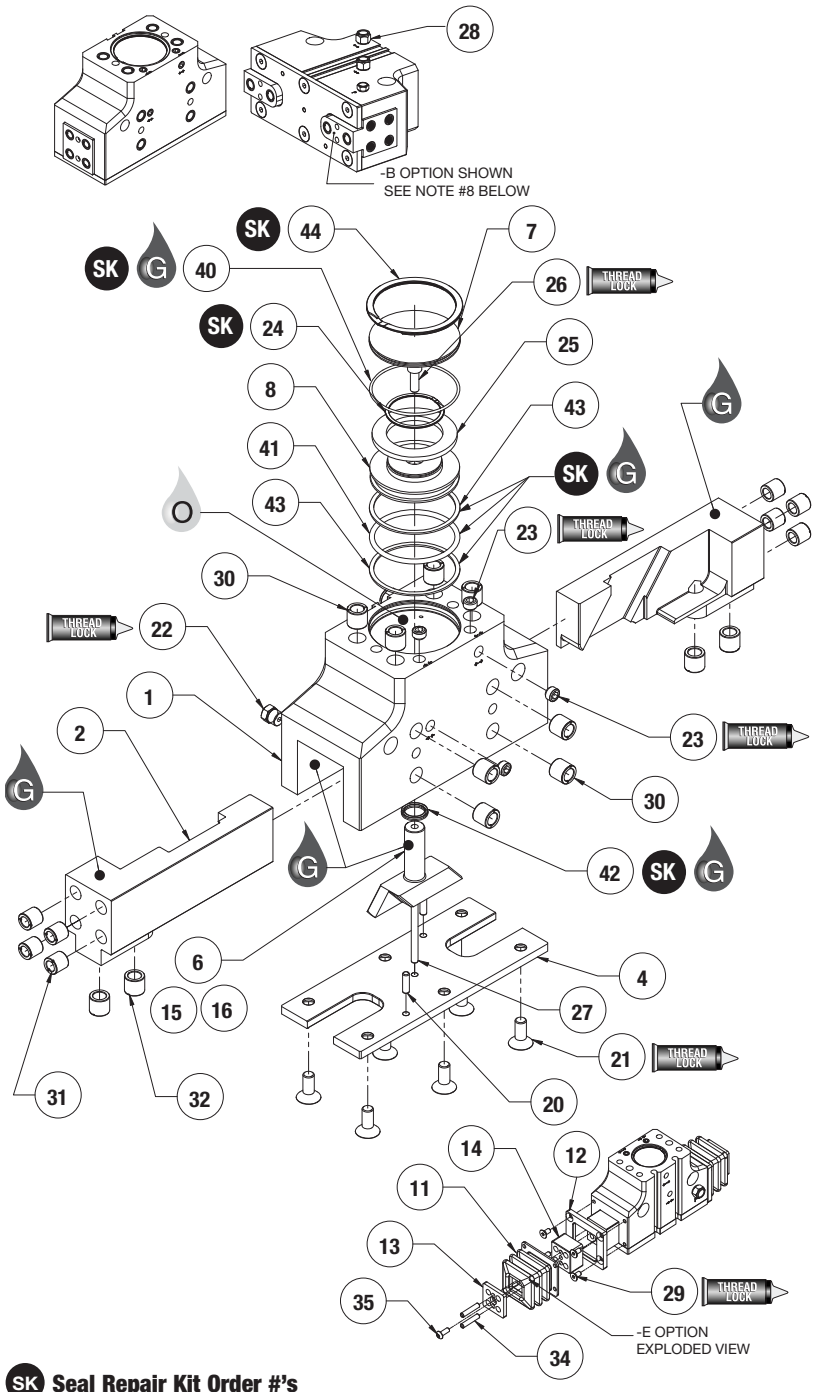
- Can be used to seal front, top, or back air ports and front purge/scavenge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: Ø.515 [Ø13.1] X .088±.002 [2.24±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

Sealed Jaw Boot Option

- Can be used to seal jaws in harsh environments
- Boot replacement available as an accessory
- Boot material is Buna-N (Nitrile) only

DIRECTCONNECT™

DPDL SERIES EXPLODED VIEW



SK **Seal Repair Kit Order #'s See Product Data Sheets**

Item	Qty	Name
01	1	Body
02	2	Jaw
04	1	Bottom Plate
06*	1	Shaft Wedge
07	1	Cap
08	1	Piston
11	2	Boot
12	2	Boot Flange
13	2	Boot Spacer Cap
14	2	Boot Spacer
15*	1	Shaft
16*	1	Wedge
20	2	Bottom Plate Locating Dowels
21	6	Bottom Plate Screws
22*	1	Breather Vent Plug (Purge)
23	4	Manifold Port Plugs
24	1	Piston Mag. Ret. Ring
25	1	Piston Magnet
26	1	Piston Mounting Screw
27	1	Shaft guide dowel pin
28*	2	Plumbing Fitting - Adapter - 1/8NPT male to 1/8BSPP female
29	8	Boot Flange Mounting Screws
30*	8	Threaded Inserts (Body)
31*	8	Threaded Inserts (Jaw - End Mount)
32*	4	Threaded Inserts (Jaw - Bottom Mount "-B" option only)
34	4	Boot Spacer Dowel Pins
35*	2	Boot Spacer Mtg Screws
40	1	Cap O-ring
41	1	Piston O-ring
42	1	U-cup
43*	2	Piston Teflon Ring
44	1	Cap Ret. Ring

NOTES:*

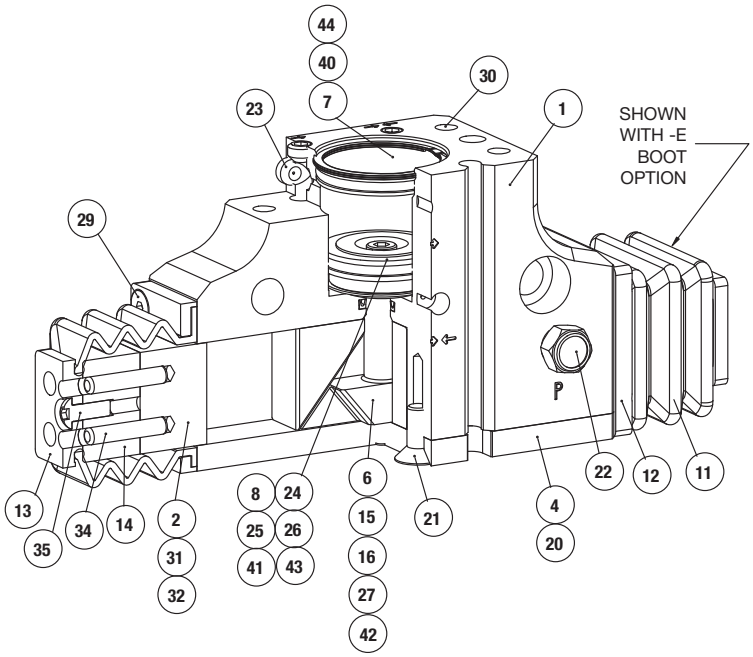
1) Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.
2) Item #30 is for size -175 and -250 only.
3) Item #31 and #32 are for size -250 only.
4) Item #22 Breather vent plug is a set screw plug for sizes -047 & -056.
5) Item #43 is for size -175 and -250 only.
6) Item #28 is for metric size -175M and -250M only.
7) Item #35 is for sizes -088 thru -250 only.
8) End-of-jaw mounting holes on -B option are supplied plugged to prevent debris from entering the gripper. These set screws can be removed for customer finger mounting. It is recommend that all unused holes be plugged for the same reason.
9) Item #6 does not pertain to size -250
10) Items #15 & 16 are for size -250 only

Assembly Procedure:

1) Install #23 airport plugs with thread-locker.
2) Press pins #20 & #27 into plate #4.
3) Install threaded inserts #30, #31, & #32.
4) Install #22 vent or plug with thread-locker.
5) Mount magnet #25 to piston #8 with retaining ring #24.
6) Install #28 metric plumbing fitting adapters.
7) Lubricate body #1 (jaw cavity & bores).
8) Lubricate & install all seals into body, piston, & cap.
9) Sub-assemble the #2 jaws on either side of the #6 shaft wedge with lubrication.
10) Insert the jaws and shaft wedge sub-assembly into body.
11) Insert piston #8 into the body bore and fasten it to the shaft wedge with Mounting screw # 26 using thread locker.
12) Install cap #7 into body with retaining ring #44.
13) Insert #4 bottom plate with pressed-in pins onto the body and fasten with #21 screws with thread-locker.

-E Option Assembly Procedure:

1) Insert pins #34 into the jaw dowel pin holes.
2) Place #14 boot spacer over pins
3) Fasten boot #11 and flange #12 to body #1 with #29 screws.
4) Fasten the spacer cap #13 to the spacer #14 with #35 screw.



Item	Qty	Name
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04	1	Bottom Plate
06*	1	Shaft Wedge
07	1	Cap
08	1	Piston
11	2	Boot
12	2	Boot Flange
13	2	Boot Spacer Cap
14	2	Boot Spacer
15*	1	Shaft
16*	1	Wedge
20	2	Bottom Plate Locating Dowels
21	6	Bottom Plate Screws
22*	1	Breather Vent Plug (Purge)
23	4	Manifold Port Plugs
24	1	Piston Mag. Ret. Ring
25	1	Piston Magnet
26	1	Piston Mounting Screw
27	1	Shaft guide dowel pin
28*	2	Plumbing Fitting Adapter - 1/8NPT male to 1/8BSPP female
29	8	Boot Flange Mounting Screws
30*	8	Threaded Inserts (Body)
31*	8	Threaded Inserts (Jaw - End Mount)
32*	4	Threaded Inserts (Jaw - Bottom Mount "-B" option only)
34	4	Boot Spacer Dowel Pins
35*	2	Boot Spacer Mtg Screws
40	1	Cap O-ring
41	1	Piston O-ring
42	1	U-cup
43*	2	Piston Teflon Ring
44	1	Cap Ret. Ring

NOTES:*

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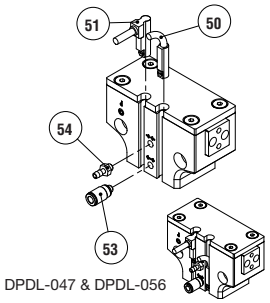
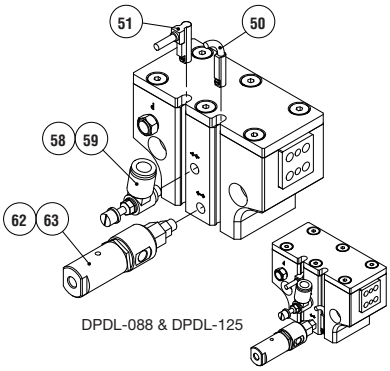
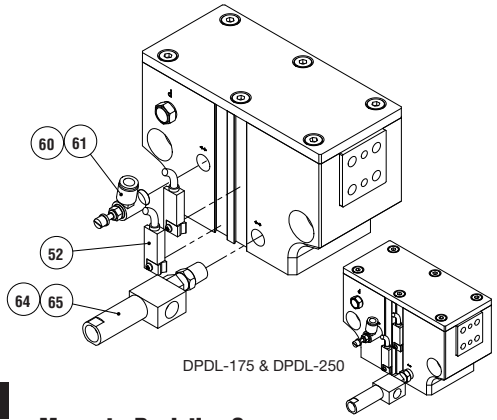
8) Item #6 does not pertain to size -250
9) Items #15 & 16 are for size -250 only

Accessory Installation & Adjustment Instructions


DPDL-047 & DPDL-056


DPDL-088 & DPDL-125


DPDL-175 & DPDL-250

Item	Qty	Name
50	1 or 2	Magneto Resistive Sensor (short barrel) w/Qk. Disconnect
51	1 or 2	Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect
52	1 or 2	Magneto Resistive Sensor (12mm Dovetail) w/Qk. Disconnect
53	1,2, or 3	Plumbing Fitting - M3 male to 3mm OD Push-in Style
54	1,2, or 3	Plumbing Fitting - M3 male to 2mm ID Barb Style
59	1 or 2	Adj. Flow Control (Metric) M5 elbow - 6mm OD Push-in Style
61	1 or 2	Adjustable Flow Control (Metric) G1/8 elbow - 6mm OD Push-in Style
63	1	Fail Safe Valve (Metric) M5
65	1	Fail Safe Valve (Metric) G1/8 (1/8 BSPP)

NOTE: Other Plumbing Fittings are available for each size - Consult Factory

Magneto-Resistive Sensors:

1) Insert sensors #50 or #51 from either end of the profile slots and set the sensor with the integrated screw.
2) Insert sensor # 52 into the dovetail slot at any point and set the sensor with the integrated screw & locking shoe.

Plumbing Fittings:

1) M3 plumbing fittings #53 & #54 can be used in any airport or purge/scavenge port.
2) Flow controls can be inserted and used in any open or closed airport to help control the stroke actuation.
3) Fail-safe valve can be used in either the open or closed airport to help limit the possibility of dropping the part if air pressure is lost.

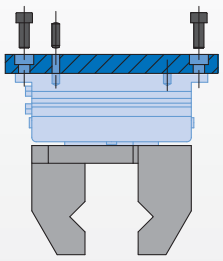
Parallel Grippers - Long Stroke Series

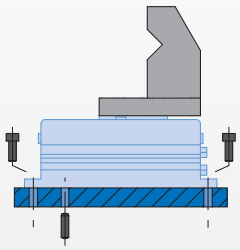
- **Compact and robust design**
  This gripper is designed for use in confined spaces, combining long strokes with the high gripping force provided by two simultaneously acting pistons.
- **For long finger applications:**
  Jaws are supported throughout the length of the body, enabling long fingers.
- **Multipurpose gripper:**
  A wide range of options and accessories (safety springs, in-line jaws, magneto resistive or inductive sensors) allow these grippers to be used in a number of applications.
- **Harsh environments:**
  Enclosed, shielded design repels chips and other particulate from internal drive mechanism.
- **Spring assist, spring return:**
  Can be used as failsafe, single acting spring return, or double acting spring assist.

Mounting Information:

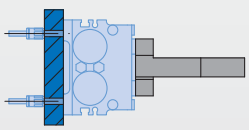
Grippers can be mounted & operated in any orientation

The gripper is protected from falling debris when it is mounted and operated upside down.

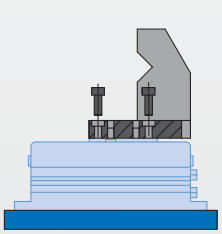




Gripper locates from the top with 2 dowel pins and can be assembled with 4 screws from the top or bottom.



Gripper can be operated with rear inlets (manifold).



Fingers are located on jaws with 2 dowel pins and assembled with 2 screws.

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range:		
Standard	**30-100 psi**	**2-7 bar**
with **-R** Spring Option	**60-100 psi**	**4-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position for Double Acting *or* 3-way, 2-position for Single Acting**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (Standard)	**-4°~180° F**	**-20°~80° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

*Addition of lubrication will greatly increase service life
†See Maintenance Section

DIRECT CONNECT™

Product Features

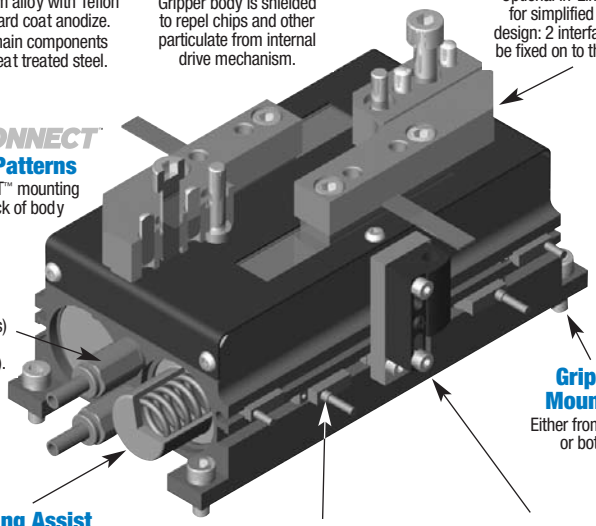
Quality Components
Made of aluminum alloy with Teflon™ impregnated hard coat anodize. The device's main components are made of heat treated steel.

Shielded Design
Gripper body is shielded to repel chips and other particulate from internal drive mechanism.

In-Line Jaws
Optional In-Line Jaws for simplified finger design: 2 interfaces can be fixed on to the jaws.

DIRECTCONNECT Mounting Patterns
DIRECTCONNECT™ mounting surface on back of body

Air Ports
Either lateral on 2 sides (couplings) or at the rear (manifold sealing).



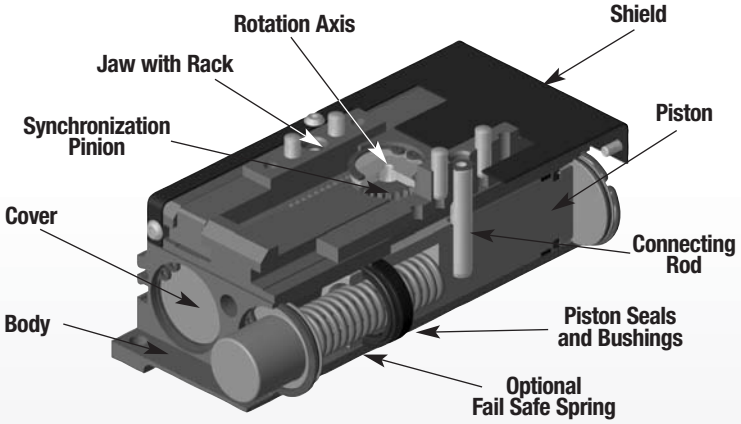
Gripper Mounting
Either from the top or bottom

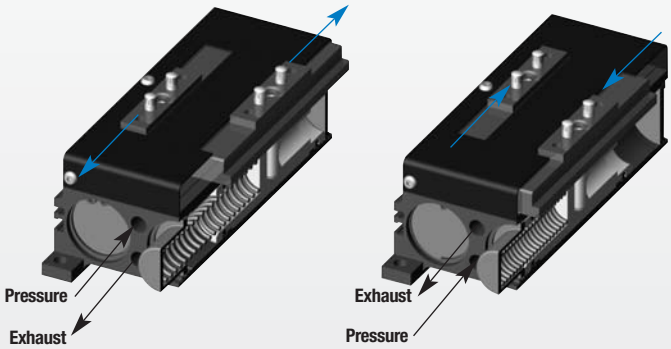
Spring Assist
Option (-R) to restrain the component, should the air supply fail or to use the gripper in single acting mode by clamping on the shaft or the bore.

Magnetic Sensor
Piston is equipped with the magnet and the body has mounting slots.

Inductive Sensor Mounting Kit
Mounting kit has 2 flags and 3 adjustable sensor holders.

Operating Principle



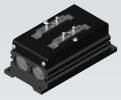


- Dual double acting pistons connected to both jaws and synchronized by the pinion actuate in opposite directions.
- Each jaw is guided by a T-slot in the body.
- Jaw Synchronization is achieved by a rack and pinion system.
- For Non-Synchronous operation, the pinion can be removed.
- Suitable for internal or external gripping.

Style-DPL Parallel Gripper

Size -2520

Style:	DPL-2520	
Stroke:	1.57 in.	40 mm
Grip Force:	182 lbs.	811 N
Weight:	3.04 lbs.	1.38 Kg

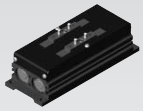


See Page 1.130

Style-DPL Parallel Gripper

Size -2535

Style:	DPL-2535	
Stroke:	2.76 in.	70 mm
Grip Force:	173 lbs.	768 N
Weight:	3.97 lbs.	1.80 Kg

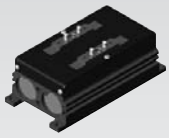


See Page 1.131

Style-DPL Parallel Gripper

Size -3230

Style:	DPL-3230	
Stroke:	2.36 in.	60 mm
Grip Force:	306 lbs.	1359 N
Weight:	4.98 lbs.	2.26 Kg

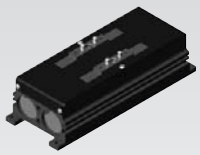


See Page 1.132

Style-DPL Parallel Gripper

Size -3250

Style:	DPL-3250	
Stroke:	3.94 in.	100 mm
Grip Force:	294 lbs.	1306 N
Weight:	6.66 lbs.	3.02 Kg

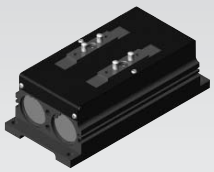


See Page 1.133

Style-DPL Parallel Gripper

Size -4040

Style:	DPL-4040	
Stroke:	3.15 in.	80 mm
Grip Force:	457 lbs.	2035 N
Weight:	9.48 lbs.	4.30 Kg

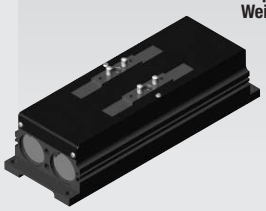


See Page 1.134

Style-DPL Parallel Gripper

Size -4070

Style:	DPL-4070	
Stroke:	5.51 in.	140 mm
Grip Force:	456 lbs.	2029 N
Weight:	13.23 lbs.	6.00 Kg



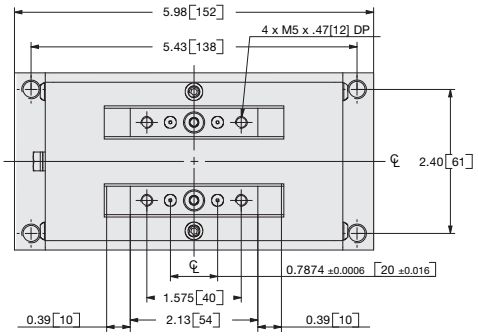
See Page 1.135

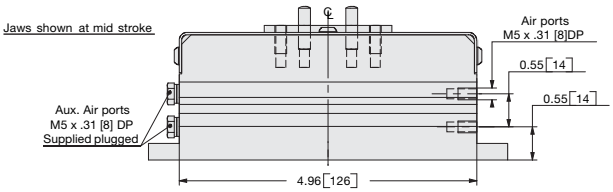
PARALLEL GRIPPER DPL-2520
TWO JAW LONG STROKE

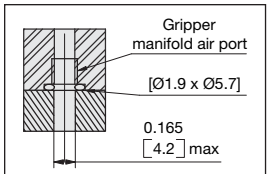
Robohand

Specifications	DPL-2520	
Total Rated Grip Force **F** @ 100 psi, 7 bar *	182 lbs.	811 N
Stroke	1.57 in	40 mm
Weight	3.04 lbs.	1.38 kg
Pressure Range (without springs)	30-100 psi	2-7 bar
Pressure Range (with springs)	60-100 psi	4-7 bar
Cylinder Bore Ø	0.98 in.	25 mm
Displacement	2.38 in³.	39 cm³
Temperature Range	-4°~180° F	-20°~80° C
Actuation (open/close)	0.3/0.3 sec.	
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.0010 in.	±0.025 mm.
Valve required to actuate single acting	3-way 2-position	
Valve required to actuate double acting	4-way, 2-position	

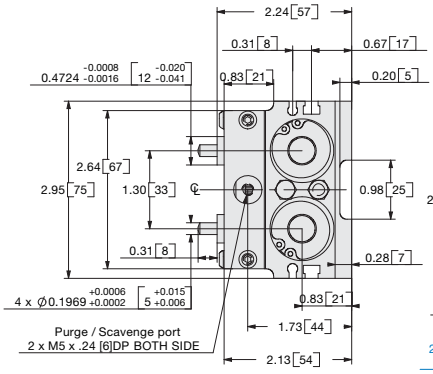
* With springs.

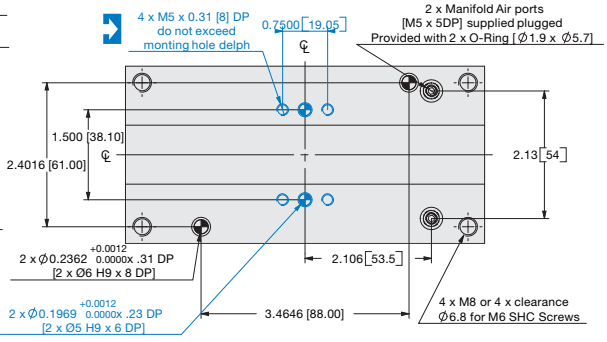






Our grippers are supplied with open side air ports and top air ports plugged. When operating top air ports, produce manifold sealing as shown (seals are provided with your gripper in a sealed bag) Part# SLKT-316



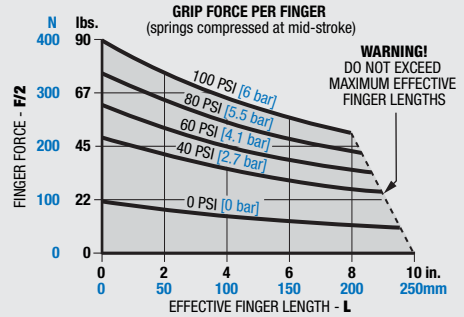


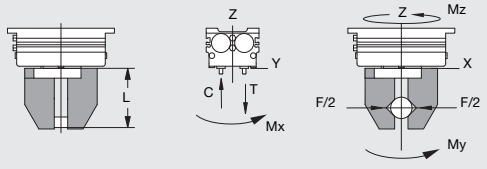
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

- Dimensions are symmetrical about centerline
- Third Angle Projection
- All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
- Metric Threads Course Pitch

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	225 lbs.	1000 N	34 lbs.	150 N
Maximum Compressive **C**	283 lbs.	1260 N	34 lbs.	150 N
Maximum Moment M_x	372 in.-lbs.	42 Nm	35 in.-lbs.	4 Nm
Maximum Moment M_y	885 in.-lbs.	100 Nm	81 in.-lbs.	9 Nm
Maximum Moment M_z	531 in.-lbs.	60 Nm	81 in.-lbs.	9 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL — NON-SYNCHRONOUS

DPL-2520 - R - NS

SPRING

SENSOR ACCESSORIES*

PNP Magneto Resistive Sensor Long Barrel w/Qk Disc*	**OHSP-017**	**1 to 3**
NPN Magneto Resistive Sensor Long Barrel w/Qk Disc*	**OHSN-017**	**1 to 3**
PNP Magneto Resistive Sensor 90° Barrel w/Qk Disc*	**OHSP-011**	**1 to 3**
NPN Magneto Resistive Sensor 90° Barrel w/Qk Disc*	**OHSN-011**	**1 to 3**
Inductive Sensor Mounting Kit (3 Holders + 2 Flags)	**OSMK-099**	**1**
M8 PNP Inductive Sensor with Quick Disconnect*	**OISP-011**	**1 to 3**
M8 NPN Inductive Sensor with Quick Disconnect*	**OISN-011**	**1 to 3**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 to 3**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 to 3**

PNEUMATIC ACCESSORIES

Standard Seal Repair Kit	**SLKT-233**	**1**
Rear Inlet Seal Repair Kit	**SLKT-316**	**1**
Fitting Push-in Straight M5 - 6mm O.D. Tube	**PLFT-037**	**1 to 2**
Fitting Push-in 90° Elbow M5 - 6mm O.D. Tube	**PLFT-041**	**1 to 2**

MOUNTING ACCESSORIES

In-Line Jaw Mounting Kit	**ODPL-001**	**1**

*Sensor and cable sold separately.

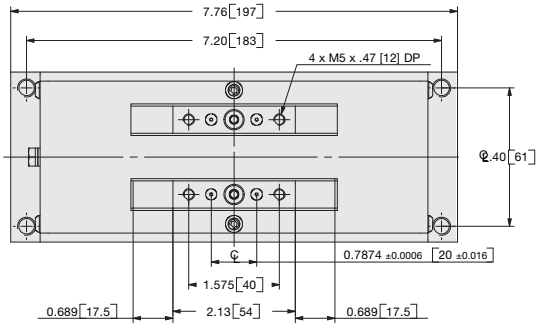
See detailed option and accessory information at the end of this section.

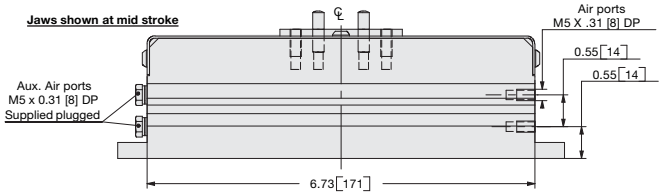
DIRECTCONNECT™

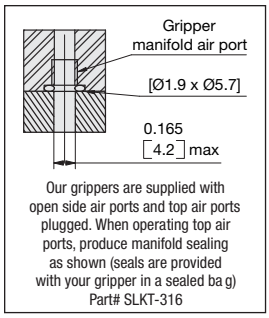
PARALLEL GRIPPER DPL-2535
TWO JAW LONG STROKE

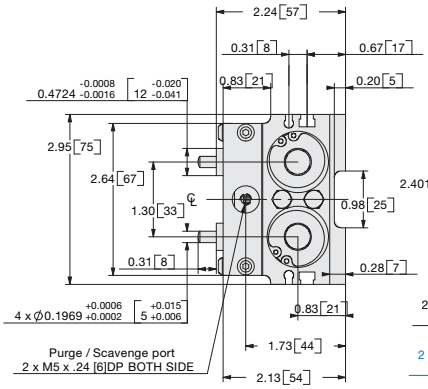
Specifications	DPL-2535	
Total Rated Grip Force **F** @ 100 psi, 7 bar *	173 lbs.	768 N
Stroke	2.76 in	70 mm
Weight	3.97 lbs.	1.80 kg
Pressure Range (without springs)	30-100 psi	2-7 bar
Pressure Range (with springs)	60-100 psi	4-7 bar
Cylinder Bore Ø	0.98 in.	25 mm
Displacement	4.15 in³.	68 cm³
Temperature Range	-4°~180° F	-20°~80° C
Actuation (open/close)	0.4/0.4 sec.	
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.0010 in.	±0.025 mm.
Valve required to actuate single acting	3-way 2-position	
Valve required to actuate double acting	4-way, 2-position	

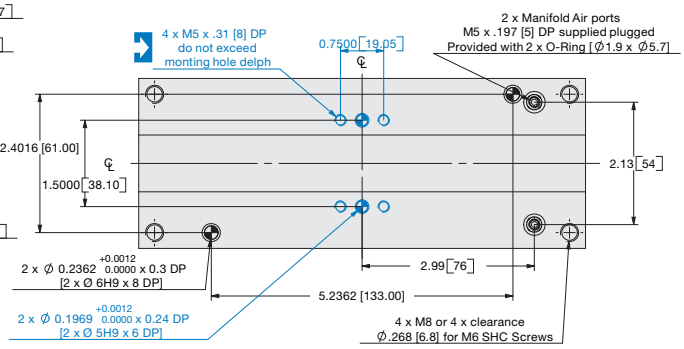
* With springs.









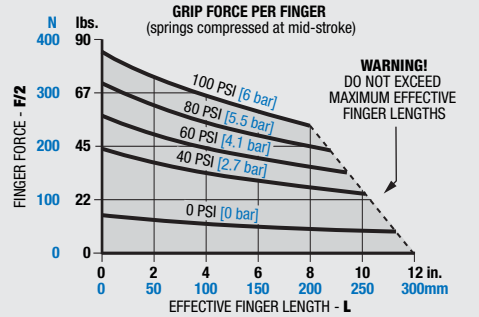


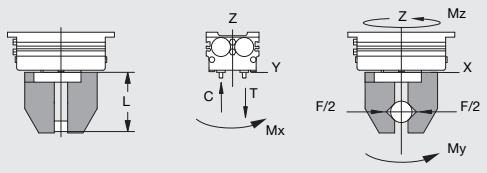
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

- Dimensions are symmetrical about centerline
- Third Angle Projection
- All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
- Metric Threads Course Pitch

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	324 lbs.	1440 N	34 lbs.	150 N
Maximum Compressive **C**	411 lbs.	1380 N	34 lbs.	150 N
Maximum Moment M_x	513 in.-lbs.	58 Nm	35 in.-lbs.	4 Nm
Maximum Moment M_y	1947 in.-lbs.	220 Nm	142 in.-lbs.	16 Nm
Maximum Moment M_z	1151 in.-lbs.	130 Nm	142 in.-lbs.	16 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL — NON-SYNCHRONOUS

DPL-2535 - R - NS

SPRING

SENSOR ACCESSORIES*

PNP Magneto Resistive Sensor Long Barrel w/Qk Disc*	**OHSP-017**	**1 to 3**
NPN Magneto Resistive Sensor Long Barrel w/Qk Disc*	**OHSN-017**	**1 to 3**
PNP Magneto Resistive Sensor 90° Barrel w/Qk Disc*	**OHSP-011**	**1 to 3**
NPN Magneto Resistive Sensor 90° Barrel w/Qk Disc*	**OHSN-011**	**1 to 3**
Inductive Sensor Mounting Kit (3 Holders + 2 Flags)	**OSMK-099**	**1**
M8 PNP Inductive Sensor with Quick Disconnect*	**OISP-011**	**1 to 3**
M8 NPN Inductive Sensor with Quick Disconnect*	**OISN-011**	**1 to 3**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 to 3**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 to 3**

PNEUMATIC ACCESSORIES

Standard Seal Repair Kit	**SLKT-233**	**1**
Rear Inlet Seal Repair Kit	**SLKT-316**	**1**
Fitting Push-in Straight M5 - 6mm O.D. Tube	**PLFT-037**	**1 to 2**
Fitting Push-in 90° Elbow M5 - 6mm O.D. Tube	**PLFT-041**	**1 to 2**

MOUNTING ACCESSORIES

In-Line Jaw Mounting Kit	**ODPL-002**	**1**

*Sensor and cable sold separately.

See detailed option and accessory information at the end of this section.

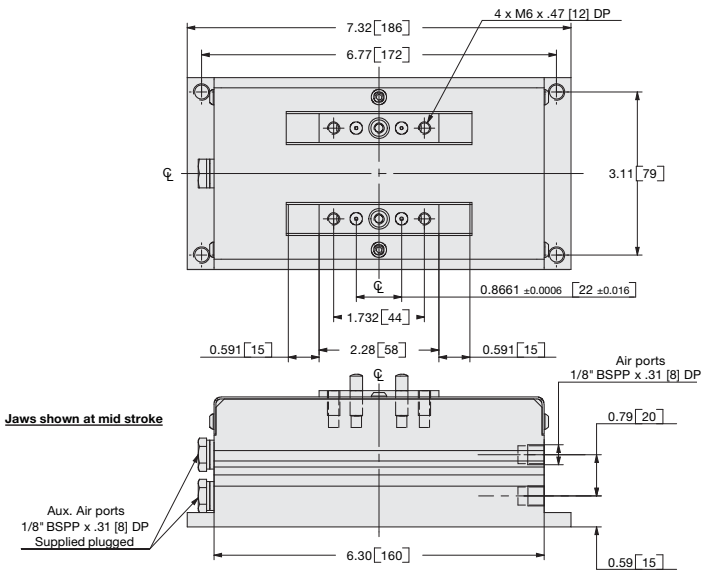
DIRECTCONNECT™

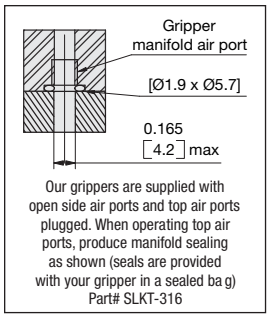
PARALLEL GRIPPER DPL-3230
TWO JAW LONG STROKE

Robohand

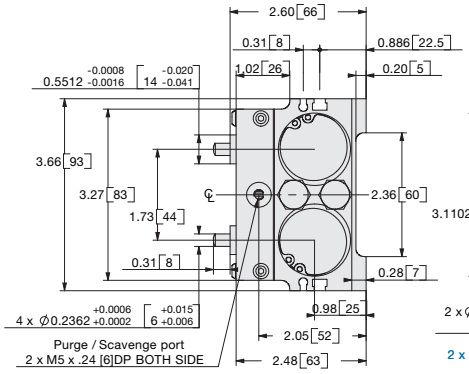
Specifications	DPL-3230	
Total Rated Grip Force **F** @ 100 psi, 7 bar *	306 lbs.	1359 N
Stroke	2.36 in	60 mm
Weight	4.98 lbs.	2.26 kg
Pressure Range (without springs)	30-100 psi	2-7 bar
Pressure Range (with springs)	60-100 psi	4-7 bar
Cylinder Bore Ø	1.26 in.	32 mm
Displacement	5.86 in³.	96 cm³
Temperature Range	-4°~180° F	-20°~80° C
Actuation (open/close)	0.4/0.4 sec.	
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.0010 in.	±0.025 mm.
Valve required to actuate single acting	3-way 2-position	
Valve required to actuate double acting	4-way, 2-position	

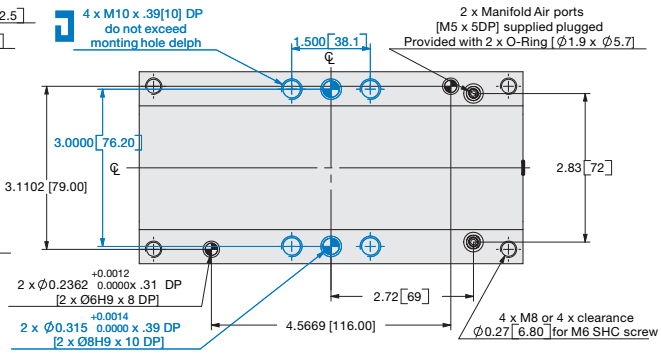
* With springs.





Our grippers are supplied with open side air ports and top air ports plugged. When operating top air ports, produce manifold sealing as shown (seals are provided with your gripper in a sealed bag) Part# SLKT-316



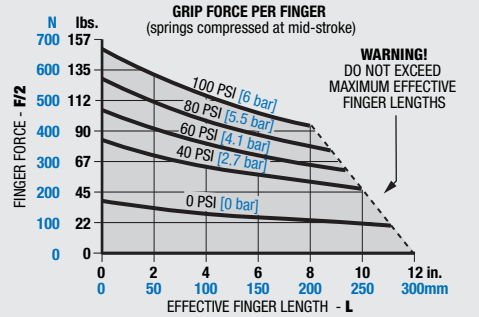


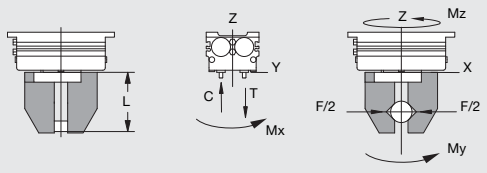
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

- Dimensions are symmetrical about centerline
- Third Angle Projection
- All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
- Metric Threads Course Pitch

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	343 lbs.	1525 N	61 lbs.	270 N
Maximum Compressive **C**	427 lbs.	1900 N	61 lbs.	270 N
Maximum Moment M_x	673 in.-lbs.	76 Nm	71 in.-lbs.	8 Nm
Maximum Moment M_y	2009 in.-lbs.	227 Nm	195 in.-lbs.	22 Nm
Maximum Moment M_z	1062 in.-lbs.	120 Nm	195 in.-lbs.	22 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL — NON-SYNCHRONOUS

DPL-3230 - R - NS

SPRING

SENSOR ACCESSORIES*		
PNP Magneto Resistive Sensor Long Barrel w/Qk Disc*	**OHSP-017**	**1 to 3**
NPN Magneto Resistive Sensor Long Barrel w/Qk Disc*	**OHSN-017**	**1 to 3**
PNP Magneto Resistive Sensor 90° Barrel w/Qk Disc*	**OHSP-011**	**1 to 3**
NPN Magneto Resistive Sensor 90° Barrel w/Qk Disc*	**OHSN-011**	**1 to 3**
Inductive Sensor Mounting Kit (3 Holders + 2 Flags)	**OSMK-100**	**1**
M8 PNP Inductive Sensor with Quick Disconnect*	**OISP-011**	**1 to 3**
M8 NPN Inductive Sensor with Quick Disconnect*	**OISN-011**	**1 to 3**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 to 3**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 to 3**
PNEUMATIC ACCESSORIES		
Standard Seal Repair Kit	**SLKT-234**	**1**
Rear Inlet Seal Repair Kit	**SLKT-316**	**1**
Fitting Push-in Straight G1/8 - 6mm O.D. Tube	**PLFT-038**	**1 to 2**
Fitting Push-in 90° Elbow G1/8 - 6mm O.D. Tube	**PLFT-042**	**1 to 2**
MOUNTING ACCESSORIES		
In-Line Jaw Mounting Kit	**ODPL-003**	**1**

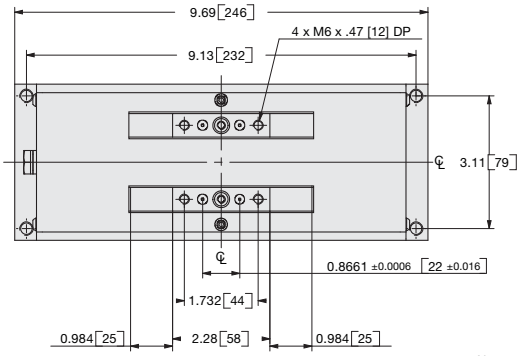
*Sensor and cable sold separately.

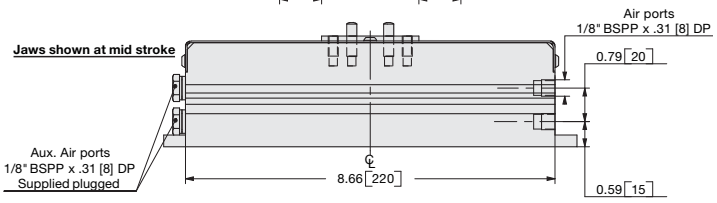
See detailed option and accessory information at the end of this section.

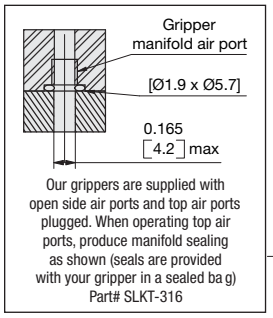
PARALLEL GRIPPER DPL-3250
TWO JAW LONG STROKE

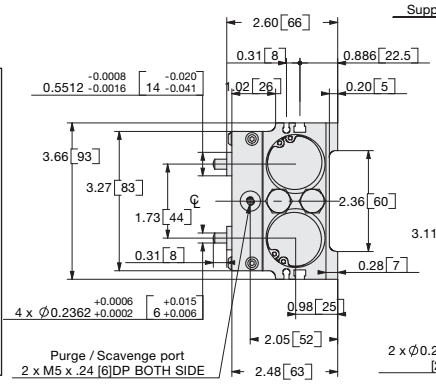
Specifications	DPL-3250	
Total Rated Grip Force **F** @ 100 psi, 7 bar *	294 lbs.	1306 N
Stroke	3.94 in	100 mm
Weight	6.66 lbs.	3.02 kg
Pressure Range (without springs)	30-100 psi	2-7 bar
Pressure Range (with springs)	60-100 psi	4-7 bar
Cylinder Bore Ø	1.26 in.	32 mm
Displacement	9.96 in³.	160 cm³
Temperature Range	-4°~180° F	-20°~80° C
Actuation (open/close)	0.5/0.5 sec.	
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.0010 in.	±0.025 mm.
Valve required to actuate single acting	3-way 2-position	
Valve required to actuate double acting	4-way, 2-position	

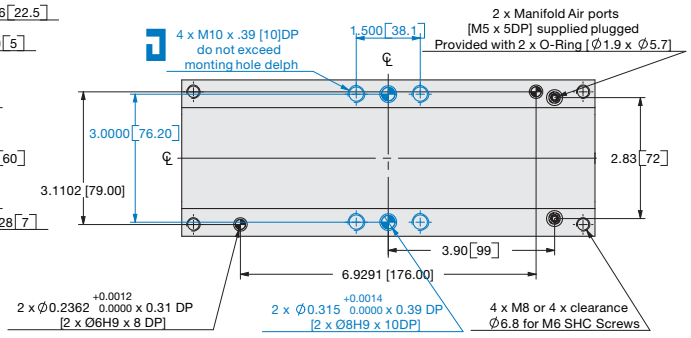
* With springs.









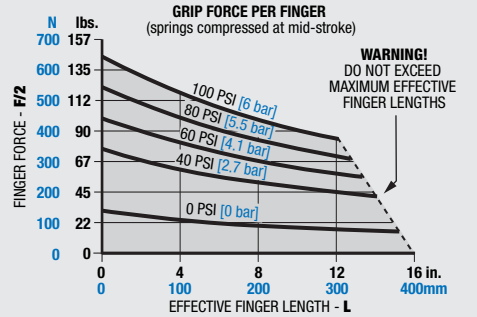


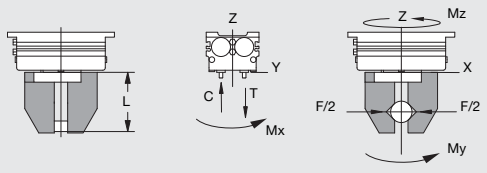
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

- Dimensions are symmetrical about centerline
- Third Angle Projection
- All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
- Metric Threads Course Pitch

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	416 lbs.	1850 N	58 lbs.	260 N
Maximum Compressive **C**	520 lbs.	2315 N	58 lbs.	260 N
Maximum Moment M_x	770 in.-lbs.	87 Nm	71 in.-lbs.	8 Nm
Maximum Moment M_y	3098 in.-lbs.	350 Nm	283 in.-lbs.	32 Nm
Maximum Moment M_z	1682 in.-lbs.	190 Nm	283 in.-lbs.	32 Nm

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL — NON-SYNCHRONOUS

DPL-3250 - R - NS

SPRING

SENSOR ACCESSORIES*		
PNP Magneto Resistive Sensor Long Barrel w/Qk Disc*	**OHSP-017**	**1 to 3**
NPN Magneto Resistive Sensor Long Barrel w/Qk Disc*	**OHSN-017**	**1 to 3**
PNP Magneto Resistive Sensor 90° Barrel w/Qk Disc*	**OHSP-011**	**1 to 3**
NPN Magneto Resistive Sensor 90° Barrel w/Qk Disc*	**OHSN-011**	**1 to 3**
Inductive Sensor Mounting Kit (3 Holders + 2 Fla gs)	**OSMK-100**	**1**
M8 PNP Inductive Sensor with Quick Disconnect*	**OISP-011**	**1 to 3**
M8 NPN Inductive Sensor with Quick Disconnect*	**OISN-011**	**1 to 3**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 to 3**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 to 3**
PNEUMATIC ACCESSORIES		
Standard Seal Repair Kit	**SLKT-234**	**1**
Rear Inlet Seal Repair Kit	**SLKT-316**	**1**
Fitting Push-in Straight G1/8 - 6mm O.D. Tube	**PLFT-038**	**1 to 2**
Fitting Push-in 90° Elbow G1/8 - 6mm O.D. Tube	**PLFT-042**	**1 to 2**
MOUNTING ACCESSORIES		
In-Line Jaw Mounting Kit	**ODPL-004**	**1**

*Sensor and cable sold separa tely.

See detailed option and accessory information at the end of this section.

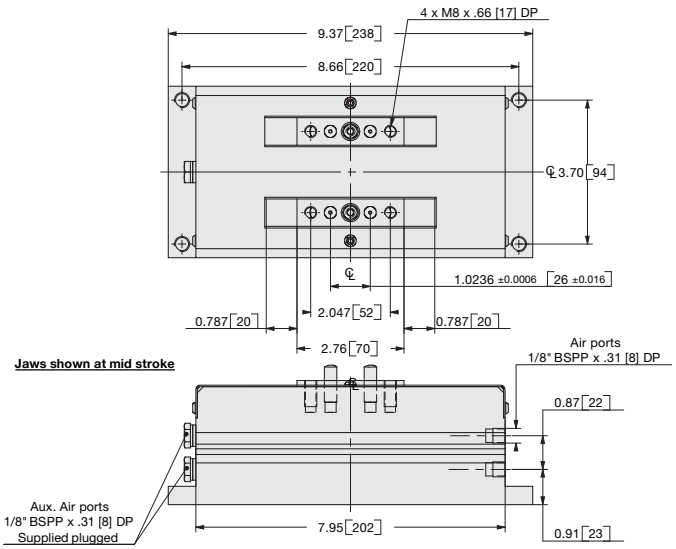
DIRECTCONNECT™

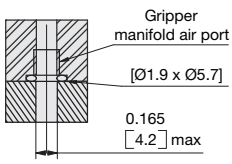
PARALLEL GRIPPER DPL-4040
TWO JAW LONG STROKE

Robohand

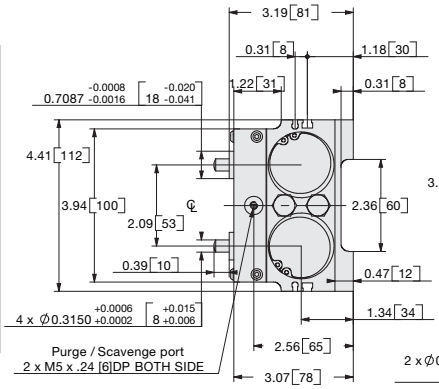
Specifications	DPL-4040	
Total Rated Grip Force **F** @ 100 psi, 7 bar *	457 lbs.	2035 N
Stroke	3.15 in	80 mm
Weight	9.48 lbs.	4.30 kg
Pressure Range (without springs)	30-100 psi	2-7 bar
Pressure Range (with springs)	60-100 psi	4-7 bar
Cylinder Bore Ø	1.57 in.	40 mm
Displacement	12.20 in^3.	200 cm^3
Temperature Range	-4°~180° F	-20°~80° C
Actuation (open/close)	0.5/0.5 sec.	
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.0010 in.	±0.025 mm.
Valve required to actuate single acting	3-way 2-position	
Valve required to actuate double acting	4-way, 2-position	

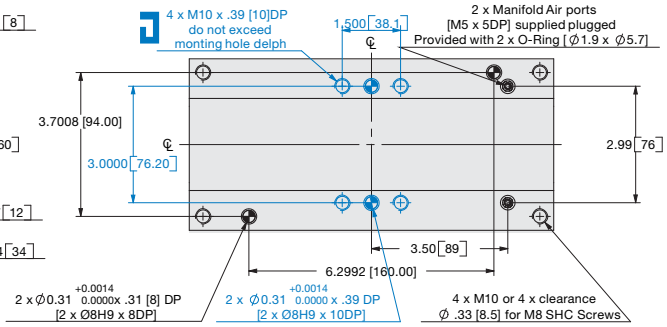
* With springs.





Our grippers are supplied with open side air ports and top air ports plugged. When operating top air ports, produce manifold sealing as shown (seals are provided with your gripper in a sealed bag) Part# SLKT-316





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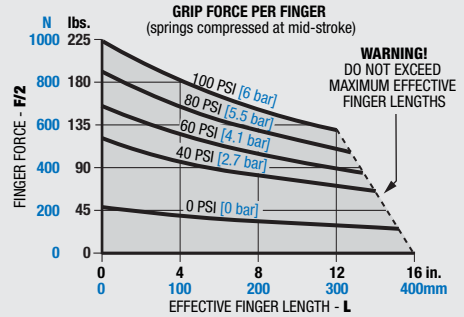
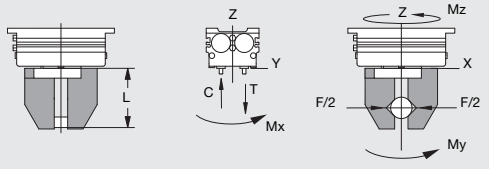
- Third Angle Projection
- All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
- Metric Threads Course Pitch

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	456 lbs.	2030 N	90 lbs.	400 N
Maximum Compressive **C**	549 lbs.	2440 N	90 lbs.	400 N
Maximum Moment $\mathbf{M_x}$	1195 in.-lbs.	135 Nm	124 in.-lbs.	14 Nm
Maximum Moment $\mathbf{M_y}$	3717 in.-lbs.	420 Nm	381 in.-lbs.	43 Nm
Maximum Moment $\mathbf{M_z}$	1947 in.-lbs.	220 Nm	381 in.-lbs.	43 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL — NON-SYNCHRONOUS — SPRING

DPL-4040 - R - NS

SENSOR ACCESSORIES*		
M8 PNP Magneto Resistive Sensor Long Barrel w/Qk Disc*	**OHSP-017**	**1 to 3**
M8 NPN Magneto Resistive Sensor Long Barrel w/Qk Disc*	**OHSN-017**	**1 to 3**
M8 PNP Magneto Resistive Sensor 90° Barrel w/Qk Disc*	**OHSP-011**	**1 to 3**
M8 NPN Magneto Resistive Sensor 90° Barrel w/Qk Disc*	**OHSN-011**	**1 to 3**
Inductive Sensor Mounting Kit (3 Holders + 2 Flags)	**OSMK-101**	**1**
M12 PNP Inductive Sensor with Quick Disconnect*	**OISP-017**	**1 to 3**
M12 NPN Inductive Sensor with Quick Disconnect*	**OISN-017**	**1 to 3**
M8 Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 to 3**
M8 Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 to 3**
M12 Quick Disconnect 2 Meter Cable Length*	**CABL-014**	**1 to 3**
M12 Quick Disconnect 5 Meter Cable Length*	**CABL-018**	**1 to 3**
PNEUMATIC ACCESSORIES		
Standard Seal Repair Kit	**SLKT-235**	**1**
Rear Inlet Seal Repair Kit	**SLKT-316**	**1**
Fitting Push-in Straight G1/8 - 6mm O.D. Tube	**PLFT-038**	**1 to 2**
Fitting Push-in 90° Elbow G1/8 - 6mm O.D. Tube	**PLFT-042**	**1 to 2**
MOUNTING ACCESSORIES		
In-Line Jaw Mounting Kit	**ODPL-005**	**1**

*Sensor and cable sold separately.

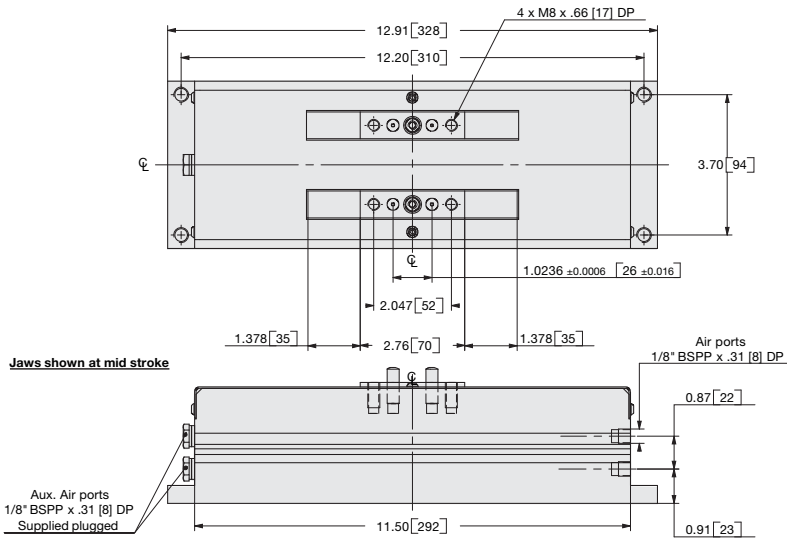
See detailed option and accessory information at the end of this section.

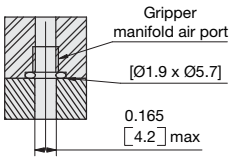
DIRECTCONNECT™

PARALLEL GRIPPER DPL-4070
TWO JAW LONG STROKE

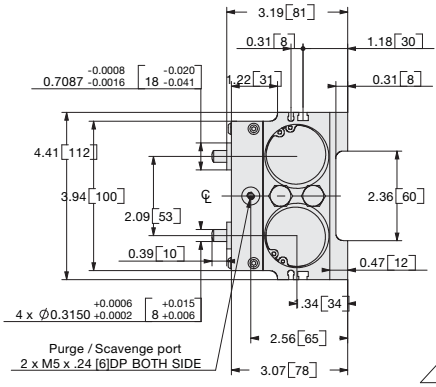
Specifications	DPL-4070	
Total Rated Grip Force **F** @ 100 psi, 7 bar *	456 lbs.	2029 N
Stroke	5.51 in	140 mm
Weight	13.23 lbs.	6.00 kg
Pressure Range (without springs)	30-100 psi	2-7 bar
Pressure Range (with springs)	60-100 psi	4-7 bar
Cylinder Bore Ø	1.57 in.	40 mm
Displacement	21.36 in^3.	350 cm^3
Temperature Range	-4°~180° F	-20°~80° C
Actuation (open/close)	0.7/0.7 sec.	
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.0010 in.	±0.025 mm.
Valve required to actuate single acting	3-way 2-position	
Valve required to actuate double acting	4-way, 2-position	

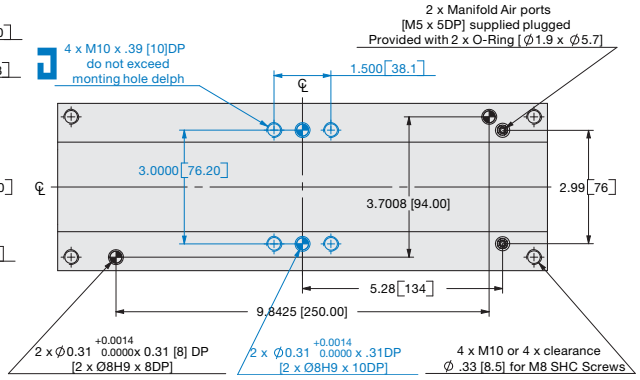
* With springs.





Our grippers are supplied with open side air ports and top air ports plugged. When operating top air ports, produce manifold sealing as shown (seals are provided with your gripper in a sealed bag) Part# SLKT-316





UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

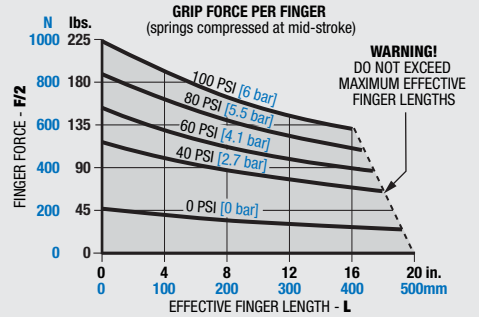
Third Angle Projection

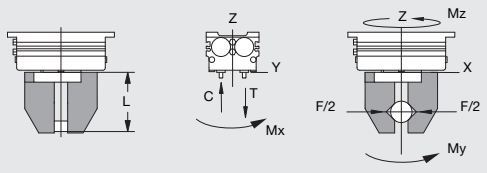
All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	564 lbs.	2510 N	90 lbs.	400 N
Maximum Compressive **C**	677 lbs.	3010 N	90 lbs.	400 N
Maximum Moment $\mathbf{M_x}$	1416 in.-lbs.	160 Nm	133 in.-lbs.	15 Nm
Maximum Moment $\mathbf{M_y}$	5885 in.-lbs.	665 Nm	566 in.-lbs.	64 Nm
Maximum Moment $\mathbf{M_z}$	3098 in.-lbs.	350 Nm	566 in.-lbs.	64 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL — NON-SYNCHRONOUS

DPL-4070 - R - NS

SPRING

SENSOR ACCESSORIES*		
M8 PNP Magneto Resistive Sensor Long Barrel w/Qk Disc*	**OHSP-017**	**1 to 3**
M8 NPN Magneto Resistive Sensor Long Barrel w/Qk Disc*	**OHSN-017**	**1 to 3**
M8 PNP Magneto Resistive Sensor 90° Barrel w/Qk Disc*	**OHSP-011**	**1 to 3**
M8 NPN Magneto Resistive Sensor 90° Barrel w/Qk Disc*	**OHSN-011**	**1 to 3**
Inductive Sensor Mounting Kit (3 Holders + 2 Flags)	**OSMK-101**	**1**
M12 PNP Inductive Sensor with Quick Disconnect*	**OISP-017**	**1 to 3**
M12 NPN Inductive Sensor with Quick Disconnect*	**OISN-017**	**1 to 3**
M8 Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 to 3**
M8 Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 to 3**
M12 Quick Disconnect 2 Meter Cable Length*	**CABL-014**	**1 to 3**
M12 Quick Disconnect 5 Meter Cable Length*	**CABL-018**	**1 to 3**
PNEUMATIC ACCESSORIES		
Standard Seal Repair Kit	**SLKT-235**	**1**
Rear Inlet Seal Repair Kit	**SLKT-316**	**1**
Fitting Push-in Straight G1/8 - 6mm O.D. Tube	**PLFT-038**	**1 to 2**
Fitting Push-in 90° Elbow G1/8 - 6mm O.D. Tube	**PLFT-042**	**1 to 2**
MOUNTING ACCESSORIES		
In-Line Jaw Mounting Kit	**ODPL-006**	**1**

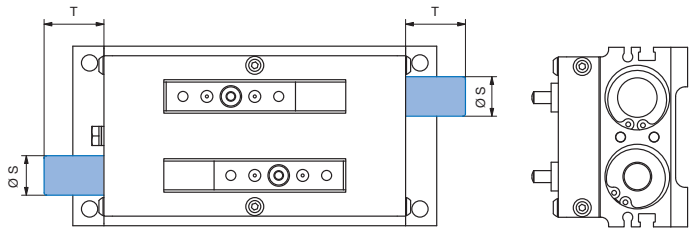
*Sensor and cable sold separately.

See detailed option and accessory information at the end of this section.

DIRECTCONNECT™

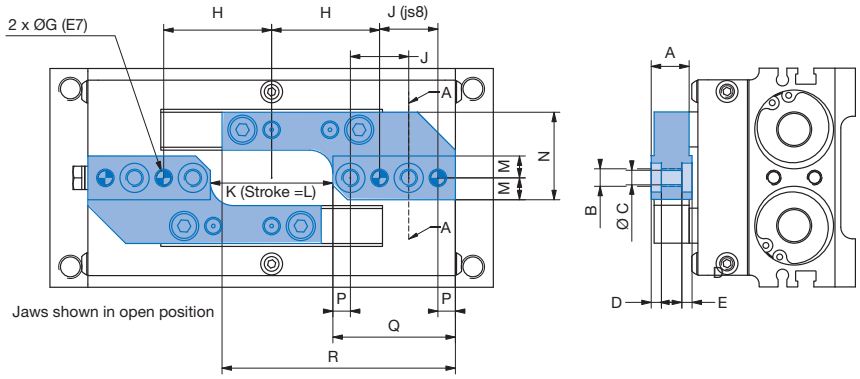
DPL Series Options & Accessories

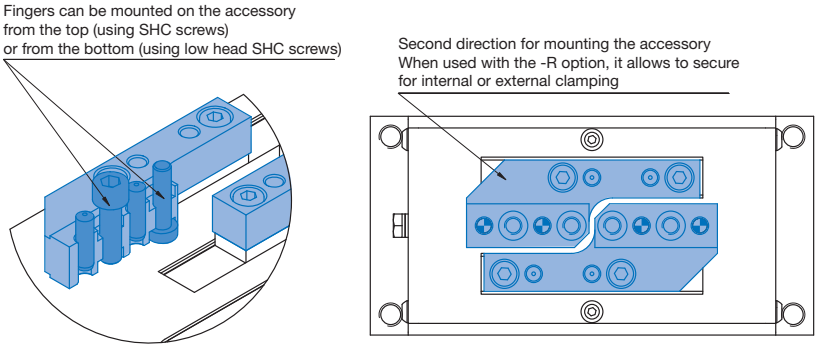
Optional Spring Assist (-R):
The safety spring allows the gripper to retain the part should the air supply fail or allo ws the gripper to be used in single a cting mode. The **-R** option is ideal for internal (ID) or external gripping (OD). The ID or OD will depend on the finger design. The fingers will face towards center of gripper for OD gripping or will face outward for ID gripping.



Use With	S	T
DPL-2520-R	0.65 [16.5]	0.98 [25]
DPL-2535-R	0.65 [16.5]	1.18 [30]
DPL-3230-R	0.98 [25]	0.76 [19.3]
DPL-3250-R	0.98 [25]	0.96 [24.3]
DPL-4040-R	1.10 [28]	1.69 [42.8]
DPL-4070-R	1.16 [29.5]	0.98 [24.8]

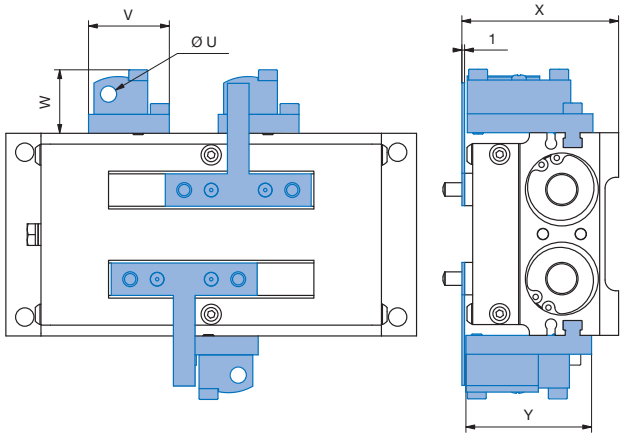
In-Line Jaw Adapter:
The In-Line Jaw Adapter allows for the simplification of the finger design. It provides for "in-line" alignment of the finger mounting holes. The kit includes 2 interfaces, screws, and dowel kit.



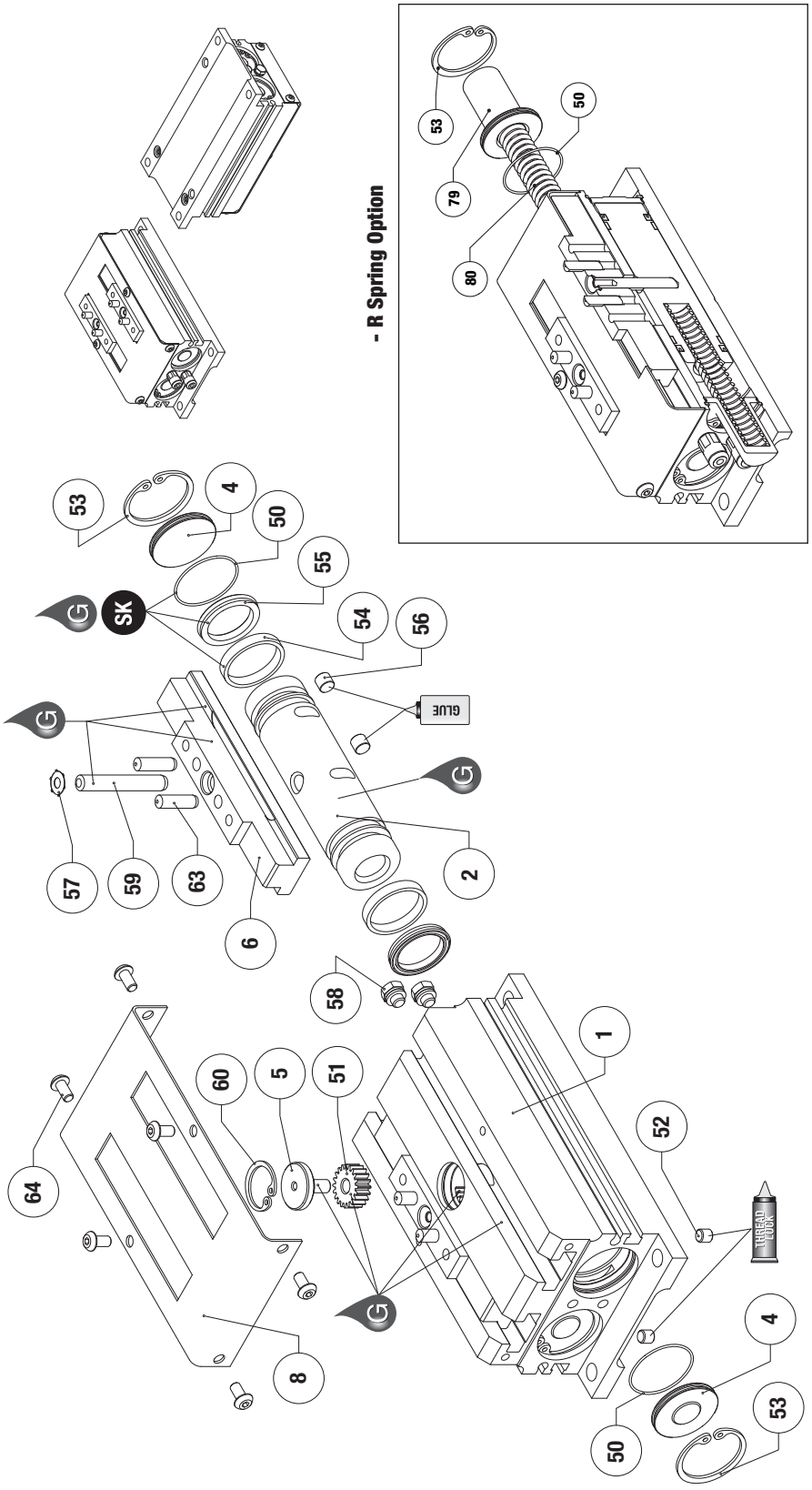


Order #	Use With	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
ODPL-001	**DPL-2520**	0.51 [13]	M6	0.20 [5]	0.14 [3.5]	0.28 [7]	M5	0.20 [5]	1.46 [37]	0.79 [20]	1.65 [42]	1.57 [40]	0.30 [7.5]	1.18 [30]	0.24 [6]	1.65 [42]	3.15 [80]
ODPL-002	**DPL-2535**	0.51 [13]	M6	0.20 [5]	0.14 [3.5]	0.28 [7]	M5	0.20 [5]	2.05 [52]	0.79 [20]	2.83 [72]	2.76 [70]	0.30 [7.5]	1.18 [30]	0.24 [6]	1.65 [42]	3.44 [87.5]
ODPL-003	**DPL-3230**	0.59 [15]	M8	0.27 [6.8]	0.12 [3]	0.39 [10]	M6	0.24 [6]	1.97 [50]	0.87 [22]	2.44 [62]	2.36 [60]	0.39 [10]	1.54 [39]	0.31 [8]	1.93 [49]	3.70 [94]
ODPL-004	**DPL-3250**	0.59 [15]	M8	0.27 [6.8]	0.12 [3]	0.39 [10]	M6	0.24 [6]	2.76 [70]	0.87 [22]	4.02 [102]	3.94 [100]	0.39 [10]	1.54 [39]	0.31 [8]	1.93 [49]	4.09 [104]
ODPL-005	**DPL-4040**	0.83 [21]	M10	0.33 [8.5]	0.20 [5]	0.47 [12]	M8	0.31 [8]	2.48 [63]	1.02 [26]	3.23 [82]	3.15 [80]	0.47 [12]	1.87 [47.5]	0.35 [9]	2.24 [57]	4.45 [113]
ODPL-006	**DPL-4070**	0.83 [21]	M10	0.33 [8.5]	0.20 [5]	0.47 [12]	M8	0.31 [8]	3.66 [93]	1.02 [26]	5.59 [142]	5.51 [140]	0.47 [12]	1.87 [47.5]	0.35 [9]	2.24 [57]	5.04 [128]

Inductive Sensors Holder:
Sense up to 3 jaw positions; open jaws, closed jaws, and part present. The kit includes 3 sensor holders and 2 flags. Sensors are not included.



Order #	Use With	U	V	W	X	Y
OSMK-099	**DPL-2520**	0.31 [8]	1.18 [30]	0.95 [24]	2.28 [58]	1.83 [46.5]
	DPL-2535	0.31 [8]	1.18 [30]	0.95 [24]	2.28 [58]	1.83 [46.5]
OSMK-100	**DPL-3230**	0.31 [8]	0.87 [22]	0.95 [24]	2.64 [67]	1.97 [50]
	DPL-3250	0.31 [8]	0.87 [22]	0.95 [24]	2.64 [67]	1.97 [50]
OSMK-101	**DPL-4040**	0.47 [12]	0.87 [22]	1.06 [27]	3.23 [82]	2.26 [57.5]
	DPL-4070	0.47 [12]	0.87 [22]	1.06 [27]	3.23 [82]	2.26 [57.5]



Item	Qty	Name
01	1	Body
02	2	Piston
04	4	Cap
05	1	Gear Cover
06	2	Jaw
08	1	Shielded Case
50	4	Seal, Cap
51	1	Synchronization Pinion
52	2	Set Screw-Manifold Port Plugs
53	4	Retainer Ring, Cap
54	4	Piston Ring Guidance
55	4	Piston U-Cup
56	4	Magnet
57	2	Drive Pin Retainer Ring
58	2	Manifold Port Plugs
59	2	Drive Pin
60	2	Center Retaining Ring
63	4	Jaw Dowel Pin
64	6	Shielded Case Screws
79	2	Spring Cap
80	2	Spring

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedure

1) Glue magnets #56 into the piston slots #2.
2) If top air ports are not used, plug the body #1 with screws #52 using glue.
3) Lubricate and install the U-Cup seals #55 and the guidance ring #54 onto the piston #2.
4) Lubricate and assemble the piston #2 into the body #1 using the adequate tooling
5) Press dowel pins #63 into the jaws #6.
6) Lubricate and install the jaws #6 into the slots #1.
7) Press the drive pin #59 and the retaining ring #57 through the jaws #6 and the piston #2.
8) Lubricate and install the axis #5, the pinion #51, the retaining ring #60 into the body. Beware of the correctly place the jaws to get a synchronous motion.
9) Lubricate and install the seal #50 onto the cap #4.
10) Install the cap #4 and the retaining ring #53 into the cap #1.
11) Install the shielded case #8.
12) Screw the plugs #58 into the body #1.

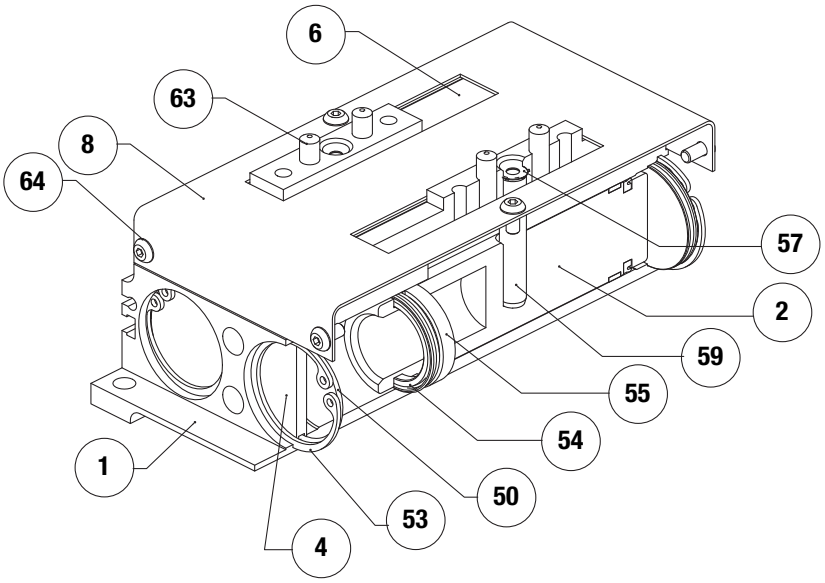
Assembly - Spring option

1) Lubricate and install the seal (#50) onto the cap.
2) Install the spring into the piston bore and into the cap bore.
3) Compress the spring till the cap reach its correct position on the body.
4) Install the retaining ring.

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection

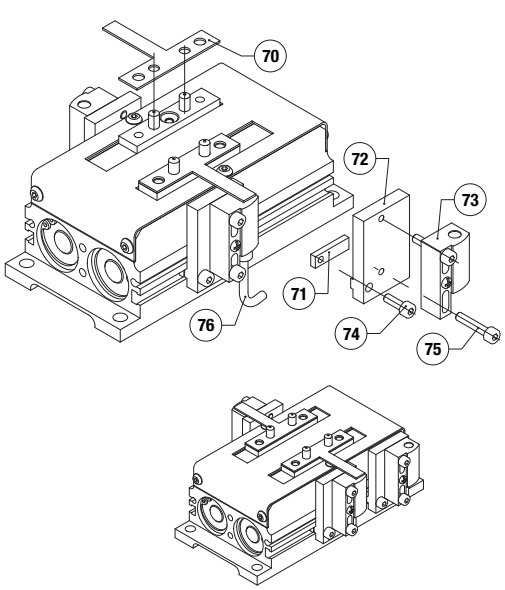
DPL Series Assembled View

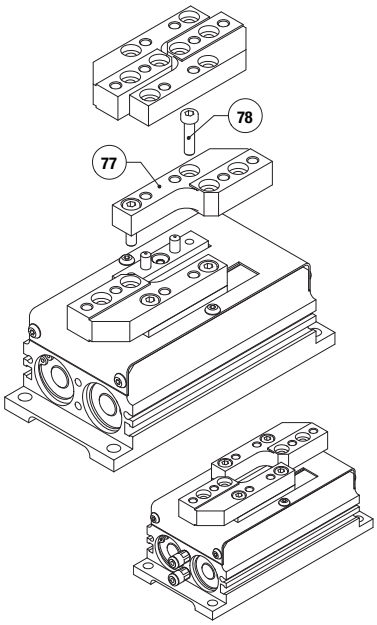


Item	Qty	Name
01	1	Body
02	2	Piston
04	4	Cap
05	1	Axis
06	2	Jaw
08	1	Shielded Case
50	4	Seal, Cap
51	1	Synchronization Pinion
52	2	Set Screw-Manifold Port Plugs
53	4	Retainer Ring, Cap
54	4	Piston Ring Guidance
55	4	Piston U-Cup
56	4	Magnet
57	2	Drive Pin Retainer Ring
58	2	Stopper-Manifold Port Plugs
59	2	Drive Pin
60	2	Center Retaining Ring
63	4	Jaw Dowel Pin
64	6	Shielded Case Screws

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Accessory Installation & Adjustment Instructions





Installation - Inductive Sensors Holder Kit

1) Place the flags (#2) on the jaws as shown.
2) Install the sensor holder (#72) on the adapter (#73) using the screws (#75)
3) Tighten the sensor (not shown) into the sensor holder(#73).
4) Install the nut (#71) into the slot of the body and the adapter (#72) on the slot. Install the screw (#74) to fix the adapter on the nut.
5) Loosen the screw (#74) and slide the assembly until the light indicates.
6) Tighten the screw (#74).

Installation - In-Line Jaws

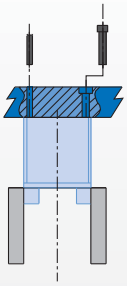
1) Install the interface (#77) onto the jaws. When combined with the **-R** option and according to the mounting direction, the interface can be used for internal or external clamping.
2) Tighten the screw (#78) between the interface (#77) and the jaw.

Parallel Grippers - Miniature Series Double Wedge

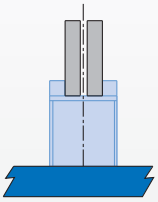
- **General purpose:** This style gripper is the most widely used in the industry. It is a rugged design and supplies very high grip force.
- **Small parts handling:** Compact size, high gripping force, and extended jaw design facilitates finger attachment for smaller parts.
- **Robotic applications:** High grip force to weight ratio make these grippers very popular on small robots.
- **Miniature Size:** Allows banks of grippers to be mounted in close proximity for multiple part picking and placing.

Mounting Information:

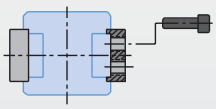
Grippers can be mounted & operated in any orientation

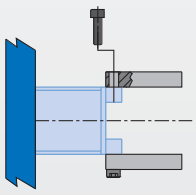


Body mounts with screws and locates with slip fit dowel pins for accuracy



Warning! Protect jaw mechanism from falling debris when mounted upside down





Fingers attach to jaws with screws and locate by keying

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~300° F**	**-30°~150° C**

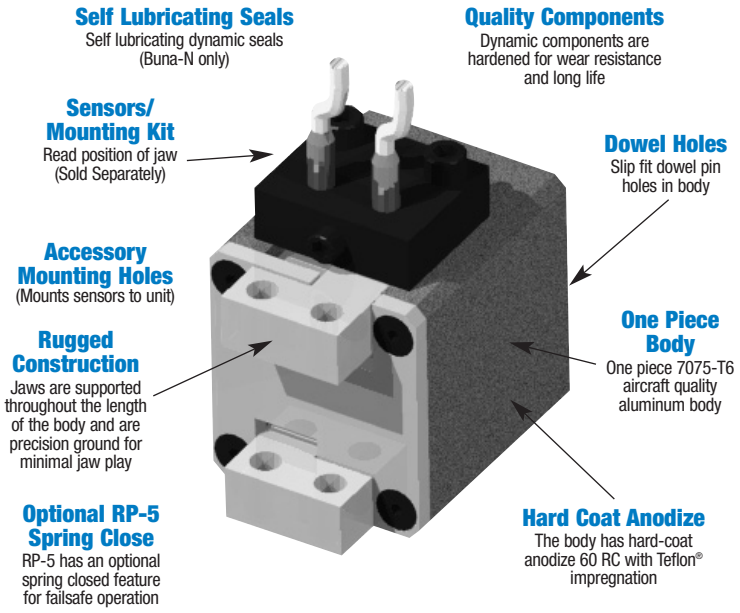
Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

Application Restrictions

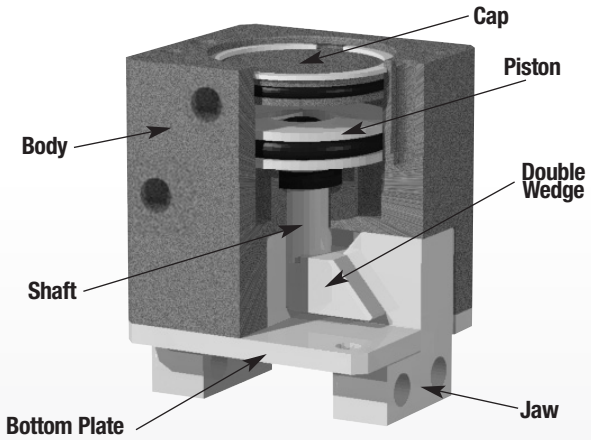
- Dirty or gritty environments
- Machining operations generating chips
- Environments with loose particulate
- Applications where mechanism lubricant could cause contamination

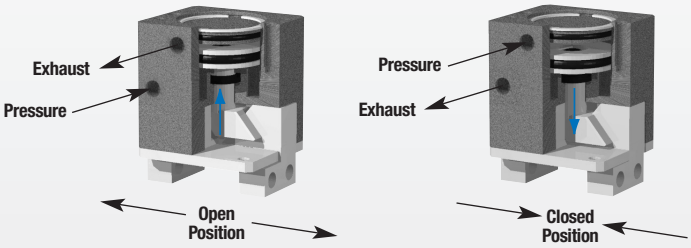
*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features



Operating Principle





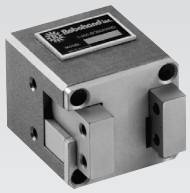
- A double acting piston is connected by a shaft to a double sided wedge.
- The wedge slides in a slot located in each of the jaws converting vertical motion of the wedge into horizontal synchronous motion of the jaws.
- The large surface area of the wedge minimizes frictional wear.
- This gripper is suitable for internal or external gripping.

U.S. Patent # 5,125,708
Designed and manufactured in the USA

Style-RP Parallel Gripper

Size -5M

	RP-5	RP-5M
Style:		
Stroke:	.16 in.	4.1 mm
Grip Force:	35 lb	156 N
Weight:	.18 lb	.08 Kg



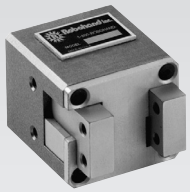
See Page 1.142

Style-RP Parallel Gripper

Size -5M-FS

	RP-5	RP-5M
Style:		
Stroke:	.16 in.	4.1 mm
Grip Force:*	40 lb	178 N
Weight:	.18 lb	.08 Kg

*Grip force with spring assist



See Page 1.142

Style-RP Parallel Gripper

Size -10M

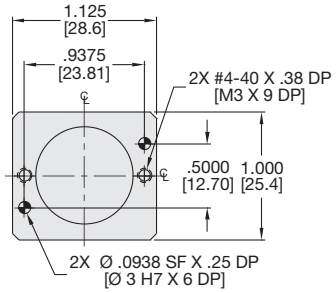
	RP-10	RP-10M
Style:		
Stroke:	1/4 in.	6.4 mm
Grip Force:	40 lb	175 N
Weight:	.28 lb	.13 Kg

See Page 1.143

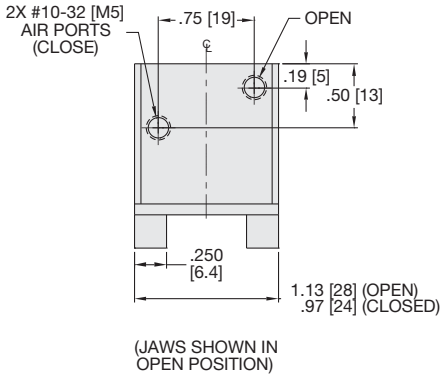
Note: Please refer to our new DPDS/DPDL Series grippers found on pages 1.96-1.127. The RP Series is still available for sale and the related information remains available on our website but we encourage you to consider the new DPDS/DPDL Series grippers found on pages 1.96-1.127 for new projects.

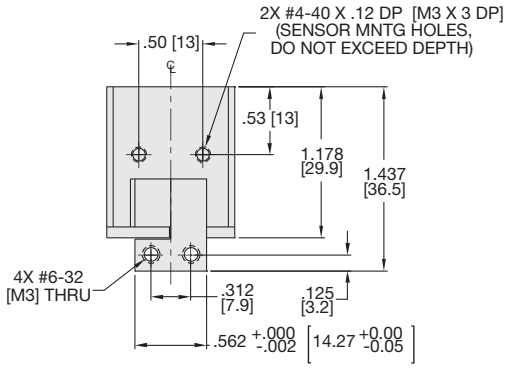
PARALLEL GRIPPER RP-5M-FS
MINIATURE DOUBLE WEDGE SERIES

Robohand



Specifications	RP-5	RP-5M
Total Rated Grip Force **F** @ 100 psi, 7 bar	35 lb	156 N
Stroke	.16 in.	4.1 mm
Weight	0.18 lb	0.08 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	0.750 in.	19.1 mm
Displacement	0.042 in^3	0.7 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.14 sec.	0.14 sec.
Accuracy	±0.001 in.	±0.03 mm
Repeatability	±0.0005 in.	±0.01 mm
Valve required to actuate	4-way, 2-position	





UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

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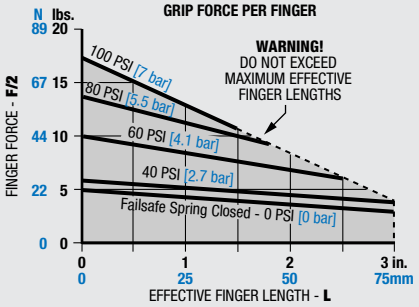
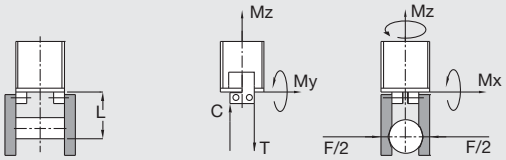




Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	50 lbs.	222 N	7 lbs.	31 N
Maximum Compressive **C**	75 lbs.	334 N	12 lbs.	53 N
Maximum Moment $\mathbf{M_x}$	30 in.-lbs.	3.4 Nm	5 in.-lbs.	0.6 Nm
Maximum Moment $\mathbf{M_y}$	30 in.-lbs.	3.4 Nm	5 in.-lbs.	0.6 Nm
Maximum Moment $\mathbf{M_z}$	30 in.-lbs.	3.4 Nm	5 in.-lbs.	0.6 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

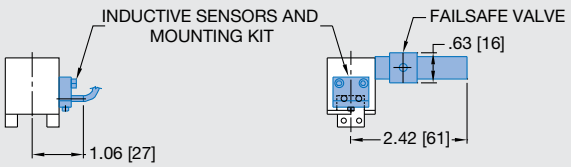
BASIC MODEL — FAIL SAFE CLOSED (Refer to Spring Assist Gripper section for more information)

RP-5 M - FS - V

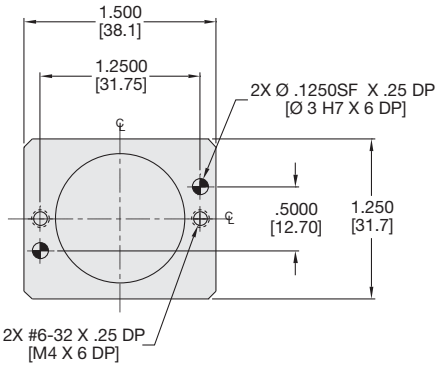
METRIC — VITON® SEALS

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	OSMK-001	1
NPN Inductive Sensor with Quick Disconnect*	OISN-019	1 or 2
PNP Inductive Sensor with Quick Disconnect*	OISP-019	1 or 2
Quick Disconnect 2 Meter Cable Length*	CABL-010	1 or 2
Quick Disconnect 5 Meter Cable Length*	CABL-013	1 or 2
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	OFSV-001	1
Fail Safe Valve (Metric)	OFSV-004	1
Standard Seal Repair Kit	SLKT-052	1
Viton® Seal Repair Kit	SLKT-052V	1

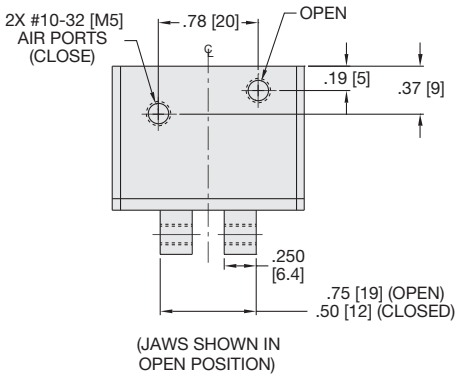
*Sensor and cable sold separately.

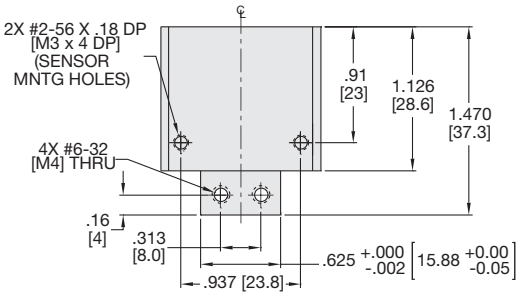


PARALLEL GRIPPER RP-10M
MINIATURE DOUBLE WEDGE SERIES



Specifications	RP-10	RP-10M
Total Rated Grip Force **F** @ 100 psi, 7 bar	40 lb	178 N
Stroke	0.25 in.	6.4 mm
Weight	0.28 lb	0.13 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	1.00 in.	25.4 mm
Displacement	0.098 in^3.	1.6 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.13 sec.	0.13 sec.
Accuracy	±0.001 in.	±0.03 mm
Repeatability	±0.0005 in.	±0.01 mm
Valve required to actuate	4-way, 2-position	



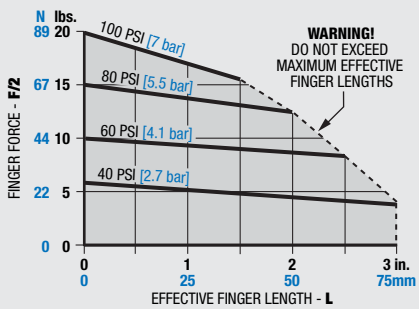


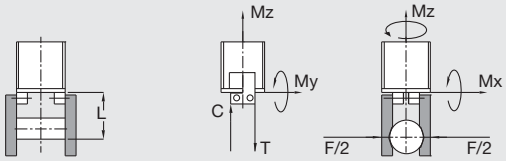
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

Loading Information

GRIP FORCE PER FINGER





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	100 lbs.	445 N	15 lbs.	67 N
Maximum Compressive **C**	150 lbs.	667 N	25 lbs.	111 N
Maximum Moment M_X	90 in.-lbs.	10.2 Nm	15 in.-lbs.	1.5 Nm
Maximum Moment M_Y	90 in.-lbs.	10.2 Nm	15 in.-lbs.	1.5 Nm
Maximum Moment M_Z	90 in.-lbs.	10.2 Nm	15 in.-lbs.	1.5 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

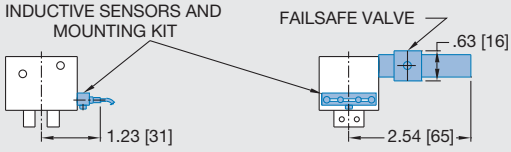
BASIC MODEL METRIC

RP-10 M - V

VITON® SEALS

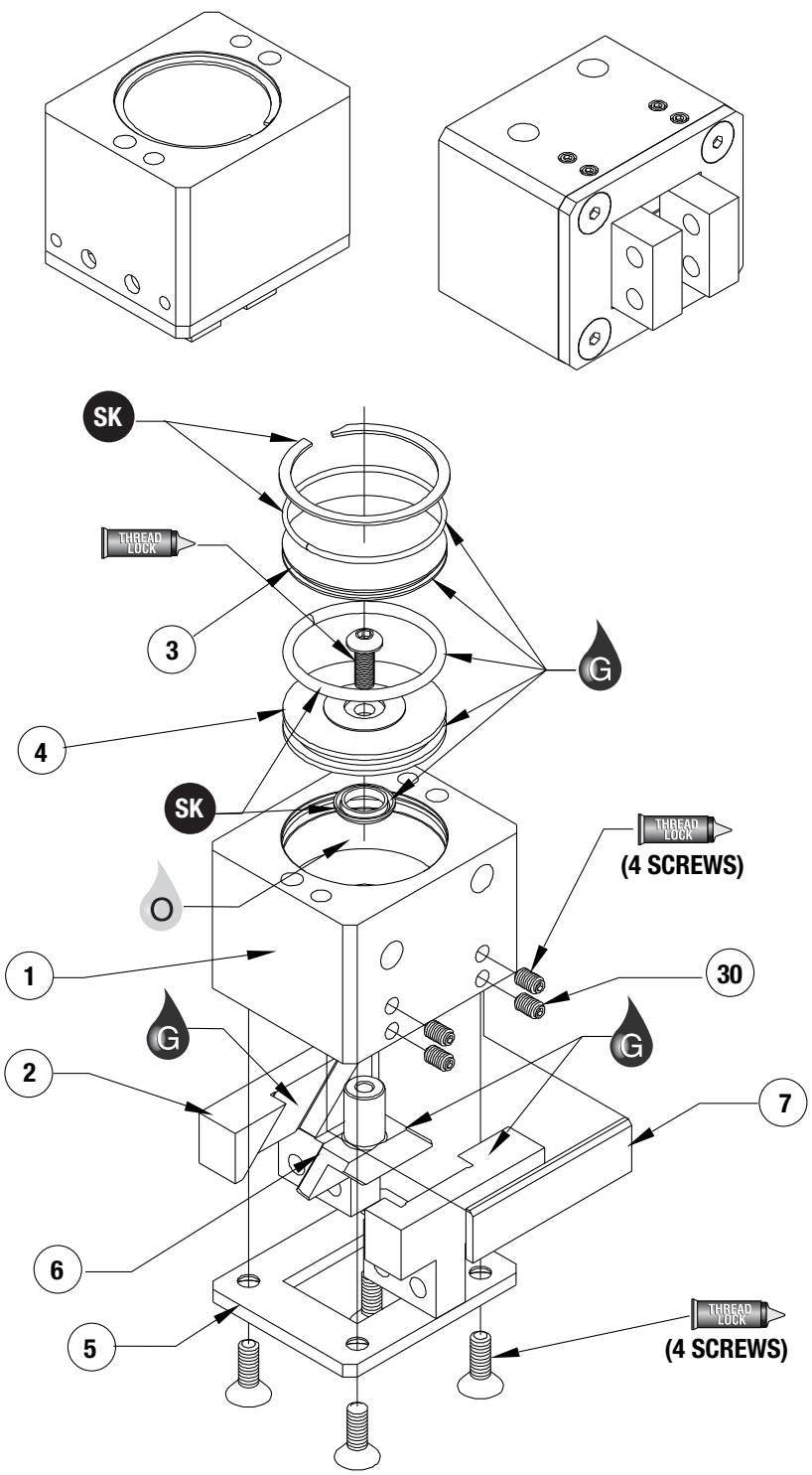
SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	OSMK-002	1
NPN Inductive Sensor with Quick Disconnect*	OISN-019	1 or 2
PNP Inductive Sensor with Quick Disconnect*	OISP-019	1 or 2
Quick Disconnect 2 Meter Cable Length*	CABL-010	1 or 2
Quick Disconnect 5 Meter Cable Length*	CABL-013	1 or 2
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	OFSV-001	1
Fail Safe Valve (Metric)	OFSV-004	1
Standard Seal Repair Kit	SLKT-036	1
Viton® Seal Repair Kit	SLKT-036V	1

*Sensor and cable sold separately.



RP-5 &10 Series Exploded View

Robohand



Item	Qty	Name
01	1	Body
02	2	Jaw
03	1	Cap
04	1	Piston
05	1	Plate,Bottom
06	1	Shaft/Wedge
07*	1	Gib
30*	4	SSS,Cup Point

* RP-10 Only

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedures

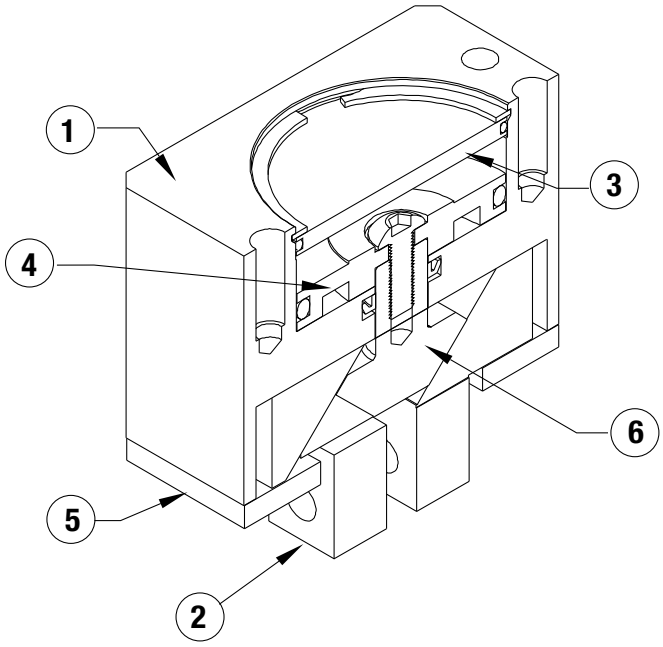
1) Lubricate and install seals.
2) Install piston into body.
3) Place wedge, jaws, and gib plate into body.
4) Attach bottom plate to body.
5) Install cap and retaining ring.

Gib Adjustment Procedure

1) Tighten set screws (#30) so that they just just touch the gib plate.
2) Cycle the gripper.
3) Adjust screws so that there is no play in jaws.

SK Seal Repair Kit Order #'s See Product Data Sheets

RP-5 & 10 Series Assembled View

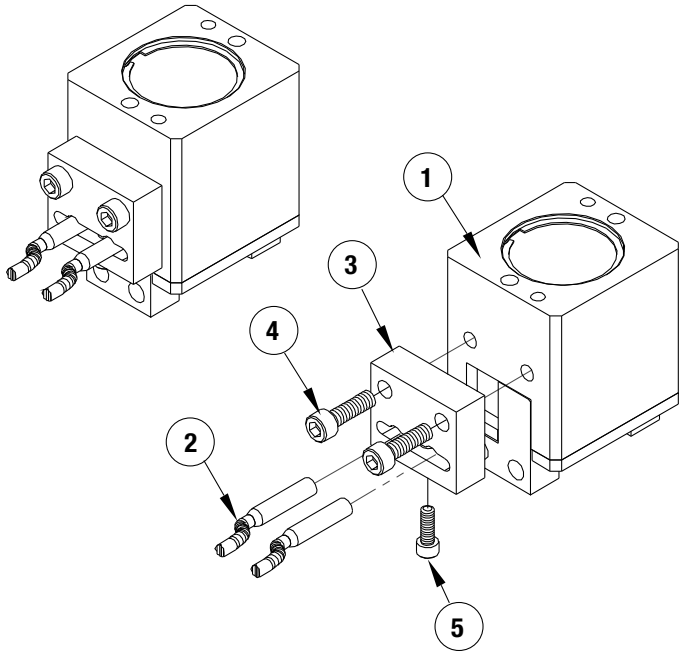


Item	Qty	Name
01	1	Body
02	2	Jaw
03	1	Cap
04	1	Piston
05	1	Plate, Bottom
06	1	Shaft/Wedge
07*	1	Gib
30*	4	SSS,Cup Point

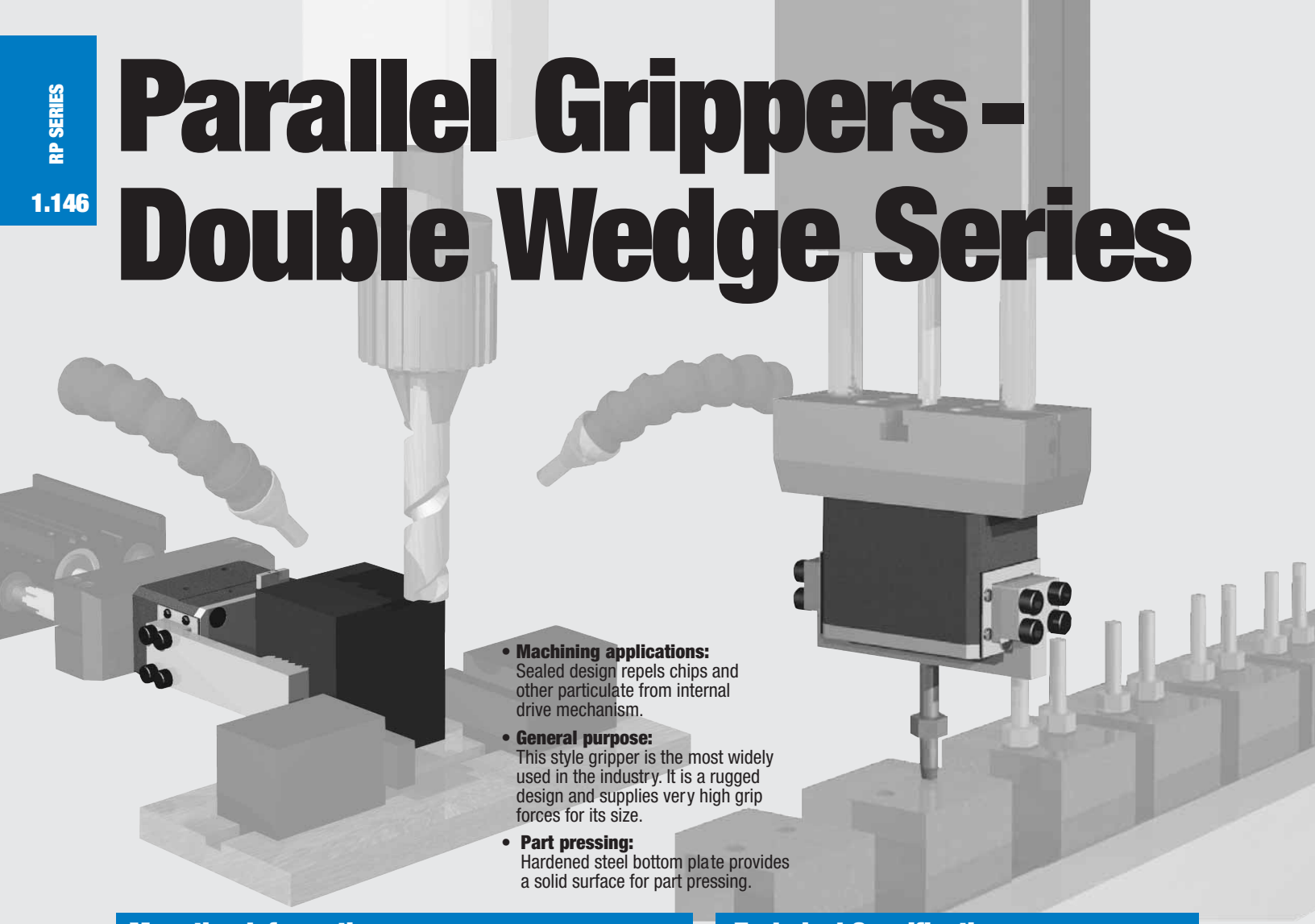
* RP-10 Only

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Accessory Installation & Adjustment Instructions



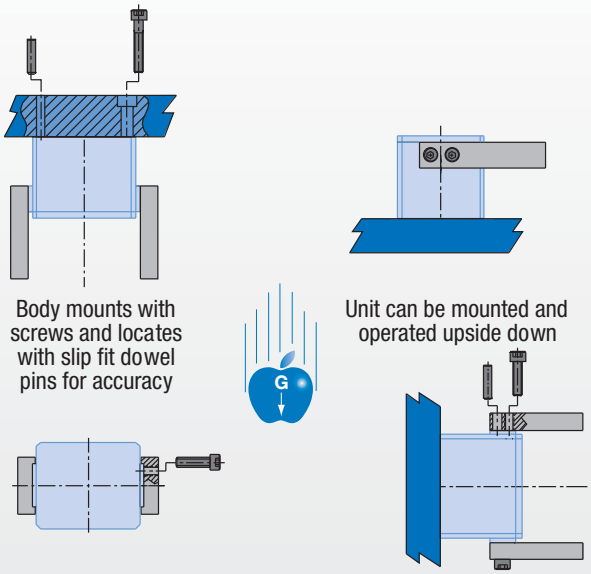
Parallel Grippers - Double Wedge Series



- **Machining applications:** Sealed design repels chips and other particulate from internal drive mechanism.
- **General purpose:** This style gripper is the most widely used in the industry. It is a rugged design and supplies very high grip forces for its size.
- **Part pressing:** Hardened steel bottom plate provides a solid surface for part pressing.

Mounting Information:

Grippers can be mounted & operated in any orientation



Body mounts with screws and locates with slip fit dowel pins for accuracy

Unit can be mounted and operated upside down

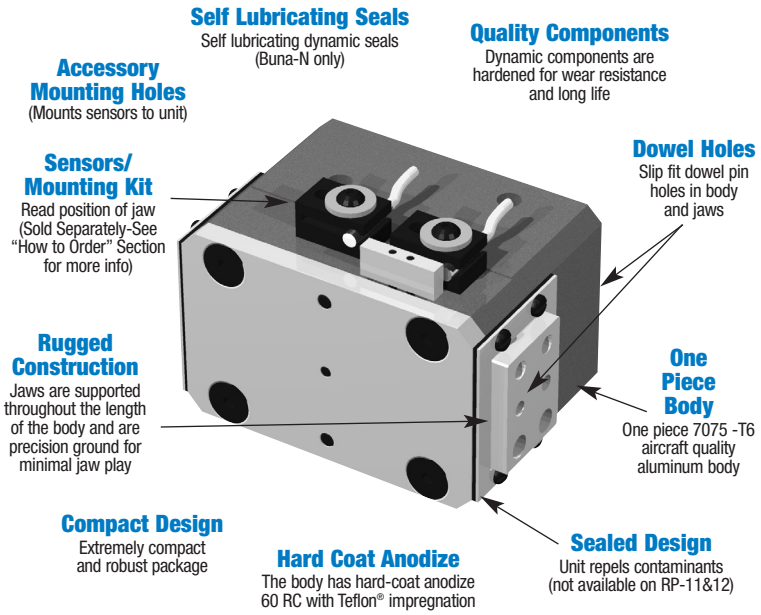
Fingers attach to jaws with screws and locate by keying or dowel pins

Technical Specifications:

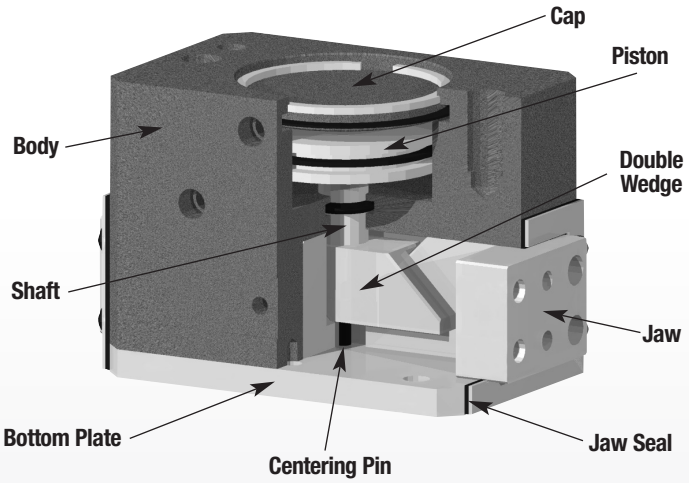
Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	
Air Quality Requirements		
Air Filtration	**40 Micron or Better**	
Air Lubrication	**Not Necessary***	
Air Humidity	**Low Moisture Content (dry)**	
Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~300° F**	**-30°~150° C**
Maintenance Specifications†		
Expected Life		
Normal Application	**5 million cycles**	
w/ Preventative Maintenance	**10+ million cycles***	
Field Repairable	**Yes**	
Seal Repair Kits Available	**Yes**	

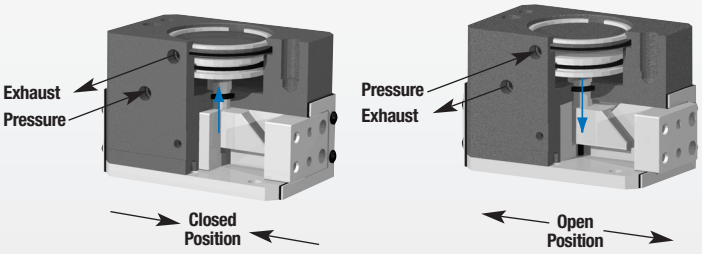
*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features



Operating Principle





- A double acting piston is connected by a shaft to a double sided wedge.
- The wedge slides in a slot located in each of the jaws converting vertical motion of the wedge into horizontal synchronous motion of the jaws.
- The large surface area of the wedge minimizes frictional wear.
- This gripper is suitable for internal or external gripping.

U.S. Patent # 5,125,708
Designed and manufactured in the USA

Style-RP Parallel Gripper
Size-11M

Style:	RP-11	RP-11M
Stroke:	0.25 in.	6.4 mm
Grip Force:	40 lbs.	178 N
Weight:	.25 lbs.	.11 Kg

See Page 1.148

Style-RP Parallel Gripper
Size-12M

Style:	RP-12	RP-12M
Stroke:	0.38 in.	9.5 mm
Grip Force:	40 lbs.	178 N
Weight:	.56 lbs.	.25 Kg

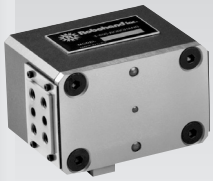
See Page 1.149

Style-RP Parallel Gripper
Size-15M

Style:	RP-15	RP-15M
Stroke:	0.50 in.	12.7 mm
Grip Force:	70 lbs.	310 N
Weight:	1.25 lbs.	.57 Kg

See Page 1.150

Style-RP Parallel Gripper
Size-17M



Style:	RP-17	RP-17M
Stroke:	0.75 in.	19.1 mm
Grip Force:	220 lbs.	979 N
Weight:	2.2 lbs.	1.0 Kg

See Page 1.151

Style-RP Parallel Gripper
Size-18M

Style:	RP-18	RP-18M
Stroke:	1.25 in.	31.8 mm
Grip Force:	400 lbs.	1779 N
Weight:	7.7 lbs.	3.5 Kg

See Page 1.152

Style-RP Parallel Gripper
Size-19M

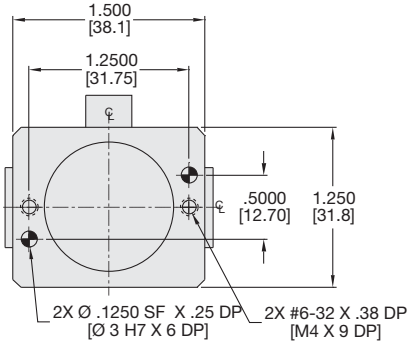
Style:	RP-19	RP-19M
Stroke:	2.00 in.	50.8 mm
Grip Force:	600 lbs.	2669 N
Weight:	21 lbs.	9.5 Kg

See Page 1.153

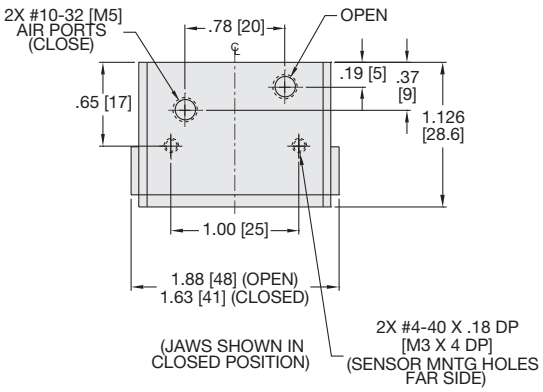
Note: Please refer to our new DPDS/DPDL Series grippers found on pages 1.96-1.127. The RP Series is still available for sale and the related information remains available on our website but we encourage you to consider the new DPDS/DPDL Series grippers found on pages 1.96-1.127 for new projects.

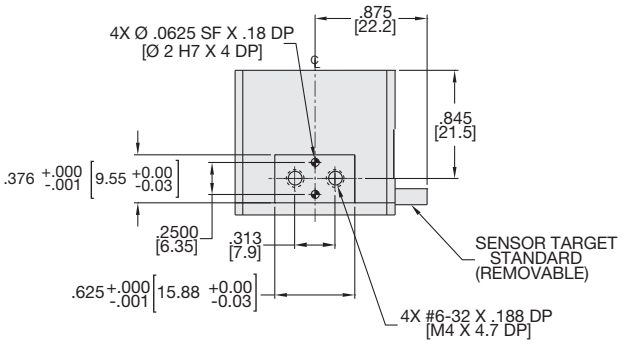
PARALLEL GRIPPER RP-11M
DOUBLE WEDGE SERIES

Robohand



Specifications	RP-11	RP-11M
Total Rated Grip Force **F** @ 100 psi, 7 bar	40 lbs.	178 N
Stroke	.25 in.	6.4 mm
Weight	0.26 lbs.	0.12 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	1.000 in.	25.4 mm
Displacement	0.098 in^3.	1.6 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.13 sec.	0.13 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate double acting	4-way, 2-position	

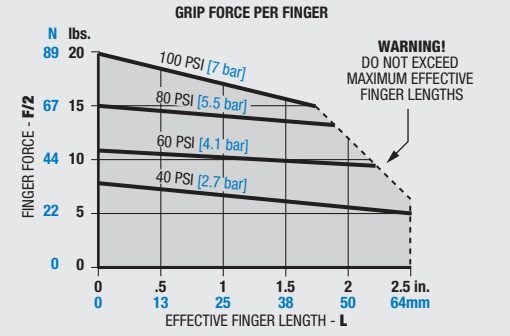


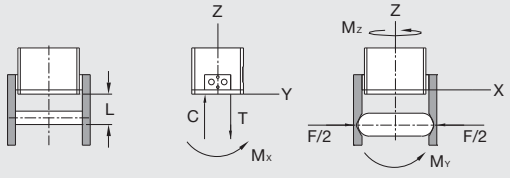


UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ±.01 0.000 = ±.005 0.0000 = ±.0005	[0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	100 lbs.	445 N	25 lbs.	111 N
Maximum Compressive **C**	200 lbs.	890 N	25 lbs.	111 N
Maximum Moment **Mx**	100 in.-lbs.	11 Nm	17 in.-lbs.	2 Nm
Maximum Moment **My**	100 in.-lbs.	11 Nm	17 in.-lbs.	2 Nm
Maximum Moment **Mz**	100 in.-lbs.	11 Nm	17 in.-lbs.	2 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

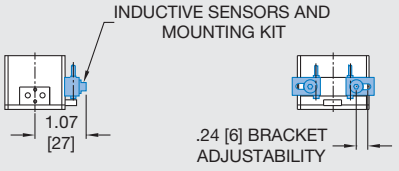
BASIC MODEL — VITON® SEALS

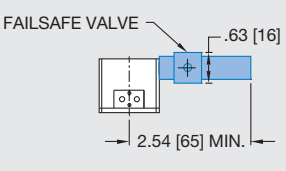
RP-11 M - V

METRIC

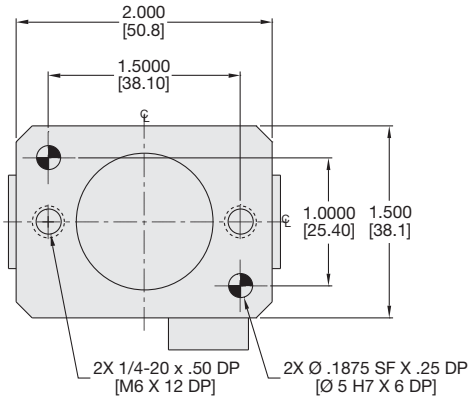
SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	**OSMK-003**	**1**
NPN Inductive Sensor with Quick Disconnect*	**OISN-019**	**1 or 2**
PNP Inductive Sensor with Quick Disconnect*	**OISP-019**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	**OFSV-001**	**1**
Fail Safe Valve (Metric)	**OFSV-004**	**1**
Standard Seal Repair Kit	**SLKT-036**	**1**
Viton® Seal Repair Kit	**SLKT-036V**	**1**

*Sensor and cable sold separately.

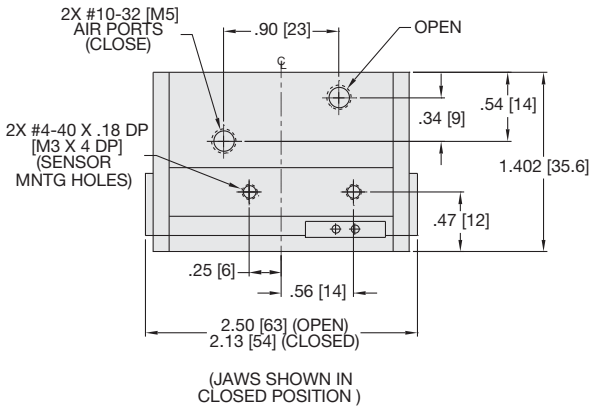


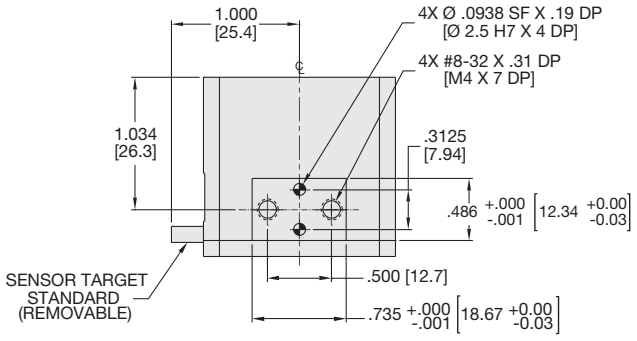


PARALLEL GRIPPER RP-12M
DOUBLE WEDGE SERIES



Specifications	RP-12	RP-12M
Total Rated Grip Force **F** @ 100 psi, 7 bar	40 lbs.	178 N
Stroke	.38 in.	9.5 mm
Weight	0.56 lbs.	0.25 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	1.000 in.	25.4 mm
Displacement	0.150 in^3.	2.5 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.13 sec.	0.13 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate double acting	4-way, 2-position	





UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ±.01 0.000 = ±.005 0.0000 = ±.0005	[0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]

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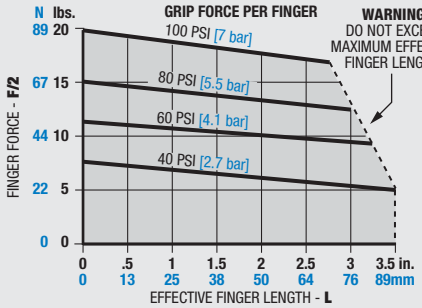
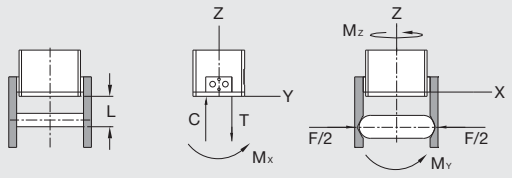




Loading Capacity†

	Static		Dynamic	
	Imperial	Metric	Imperial	Metric
Maximum Tensile **T**	200 lbs.	890 N	25 lbs.	111 N
Maximum Compressive **C**	400 lbs.	1779 N	25 lbs.	111 N
Maximum Moment **Mx**	150 in.-lbs.	17 Nm	25 in.-lbs.	3 Nm
Maximum Moment **My**	150 in.-lbs.	17 Nm	25 in.-lbs.	3 Nm
Maximum Moment **Mz**	150 in.-lbs.	17 Nm	25 in.-lbs.	3 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

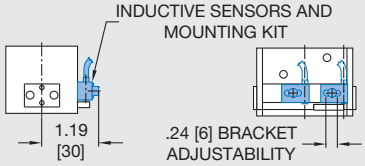
BASIC MODEL — VITON® SEALS

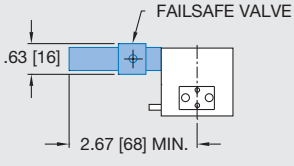
RP-12 M - V

METRIC

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	**OSMK-003**	**1**
NPN Inductive Sensor with Quick Disconnect*	**OISN-019**	**1 or 2**
PNP Inductive Sensor with Quick Disconnect*	**OISP-019**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	**OFSV-001**	**1**
Fail Safe Valve (Metric)	**OFSV-004**	**1**
Standard Seal Repair Kit	**SLKT-040**	**1**
Viton® Seal Repair Kit	**SLKT-040V**	**1**

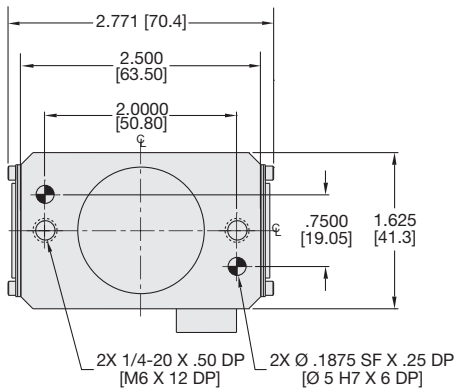
*Sensor and cable sold separately.



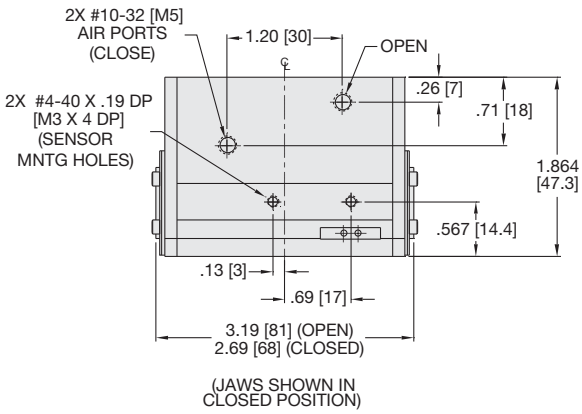


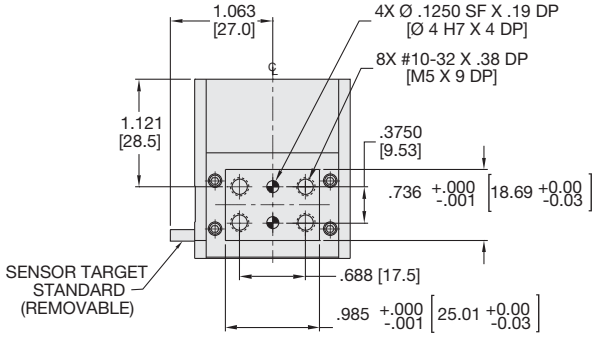
PARALLEL GRIPPER RP-15M
DOUBLE WEDGE SERIES

Robohand



Specifications	RP-15	RP-15M
Total Rated Grip Force **F** @ 100 psi, 7 bar	70 lbs.	311 N
Stroke	.50 in.	12.7 mm
Weight	1.25 lbs.	0.57 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	1.25 in.	31.8 mm
Displacement	0.300 in^3.	4.9 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.20 sec.	0.20 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate double acting	4-way, 2-position	

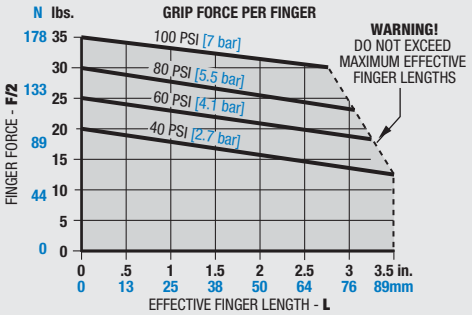


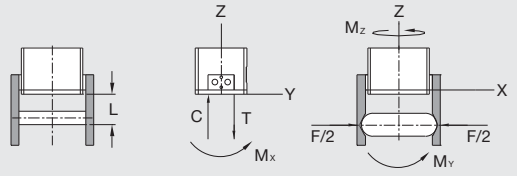


UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ±.01 0.000 = ±.005 0.0000 = ±.0005	[0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]

Loading Information





Loading Capacity†

	Static		Dynamic	
	Imperial	Metric	Imperial	Metric
Maximum Tensile **T**	400 lbs.	1779 N	50 lbs.	222 N
Maximum Compressive **C**	750 lbs.	3336 N	50 lbs.	222 N
Maximum Moment M_x	300 in.-lbs.	34 Nm	50 in.-lbs.	6 Nm
Maximum Moment M_y	300 in.-lbs.	34 Nm	50 in.-lbs.	6 Nm
Maximum Moment M_z	300 in.-lbs.	34 Nm	50 in.-lbs.	6 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

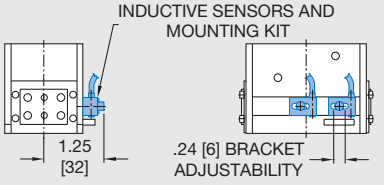
BASIC MODEL — VITON® SEALS

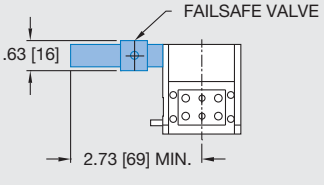
RP-15 M - V

METRIC

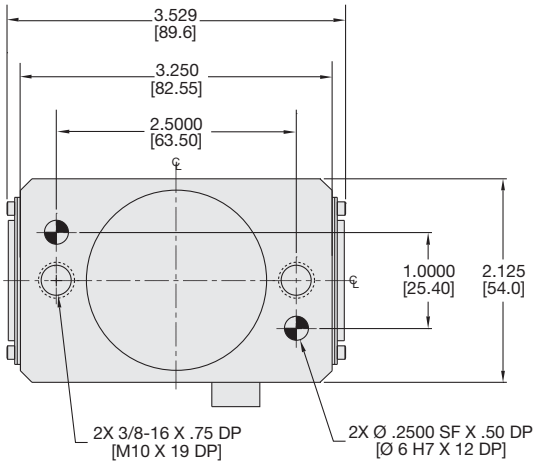
SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	**OSMK-003**	**1**
NPN Inductive Sensor with Quick Disconnect*	**OISN-019**	**1 or 2**
PNP Inductive Sensor with Quick Disconnect*	**OISP-019**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	**OFSV-001**	**1**
Fail Safe Valve (Metric)	**OFSV-004**	**1**
Standard Seal Repair Kit	**SLKT-041**	**1**
Viton® Seal Repair Kit	**SLKT-041V**	**1**

*Sensor and cable sold separately.

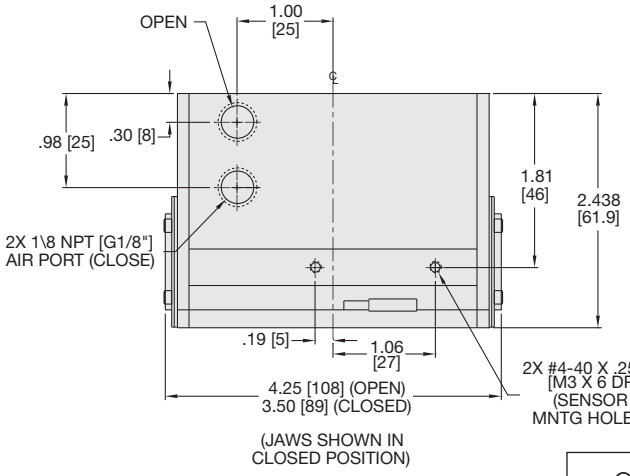


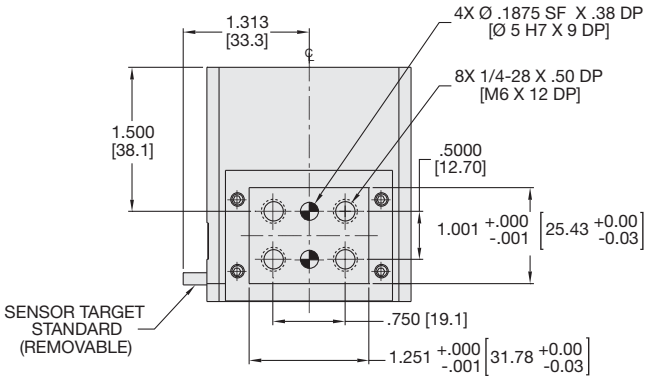


PARALLEL GRIPPER RP-17M
DOUBLE WEDGE SERIES



Specifications	RP-17	RP-17M
Total Rated Grip Force **F** @ 100 psi, 7 bar	220 lbs.	979 N
Stroke	.75 in.	19.1 mm
Weight	2.2 lbs.	1.0 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	1.813 in.	46.1 mm
Displacement	1.400 in^3	22.9 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.18 sec.	0.18 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate double acting	4-way, 2-position	





UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ±.01	[0.] = [±.25]
				0.000 = ±.005	[0.0] = [±.13]
				0.0000 = ±.0005	[0.00] = [±.013]

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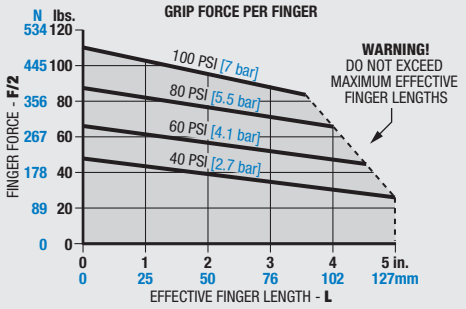
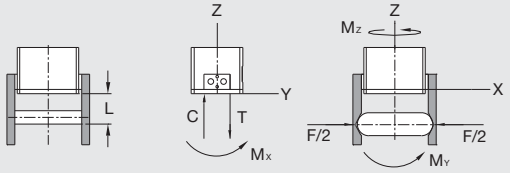




Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	750 lbs.	3336 N	100 lbs.	445 N
Maximum Compressive **C**	1500 lbs.	6672 N	100 lbs.	445 N
Maximum Moment M_x	750 in.-lbs.	85 Nm	125 in.-lbs.	14 Nm
Maximum Moment M_y	750 in.-lbs.	85 Nm	125 in.-lbs.	14 Nm
Maximum Moment M_z	750 in.-lbs.	85 Nm	125 in.-lbs.	14 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

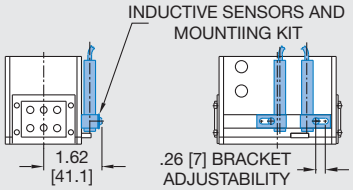
BASIC MODEL — VITON® SEALS

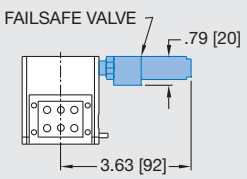
RP-17 M - V

METRIC

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	OSMK-072	1
NPN Inductive Sensor with Quick Disconnect*	OISN-011	1 or 2
PNP Inductive Sensor with Quick Disconnect*	OISP-011	1 or 2
Quick Disconnect 2 Meter Cable Length*	CABL-010	1 or 2
Quick Disconnect 5 Meter Cable Length*	CABL-013	1 or 2
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	OFSV-002	1
Fail Safe Valve (Metric)	OFSV-005	1
Standard Seal Repair Kit	SLKT-042	1
Viton® Seal Repair Kit	SLKT-042V	1

*Sensor and cable sold separately.





PARALLEL GRIPPER RP-18M
DOUBLE WEDGE SERIES

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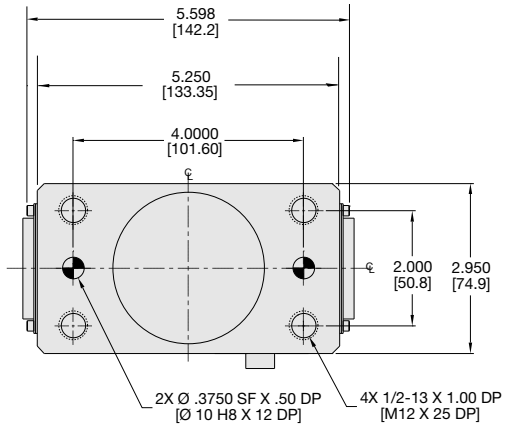
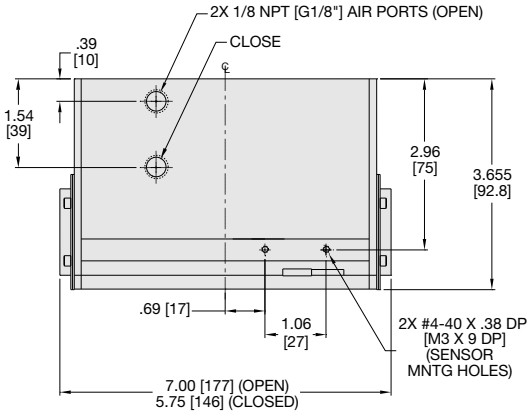
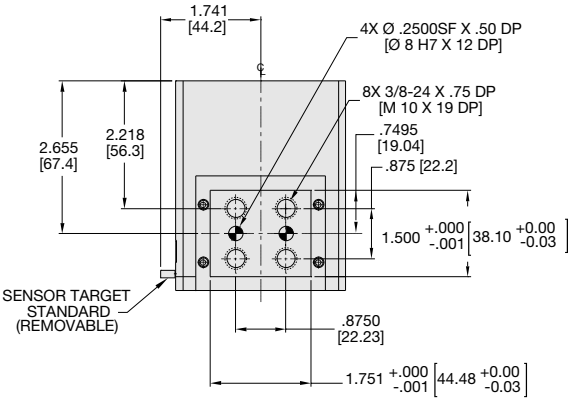


Specifications	RP-18	RP-18M
Total Rated Grip Force **F** @ 100 psi, 7 bar	400 lbs.	1779 N
Stroke	1.25 in.	31.8 mm
Weight	7.7 lbs.	3.5 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	2.500 in.	63.5 mm
Displacement	4.400 in^3	72.1 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.22 sec.	0.22 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate double acting	4-way, 2-position	



(JAWS SHOWN IN CLOSED POSITION)



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ±.01	[0.] = [±.25]
				0.000 = ±.005	[0.0] = [±.13]
				0.0000 = ±.0005	[0.00] = [±.013]

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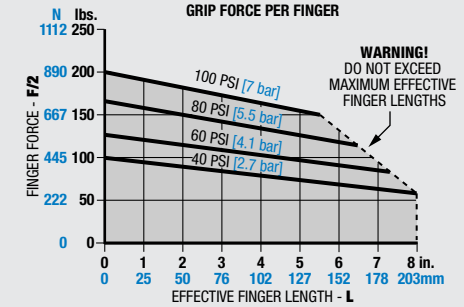
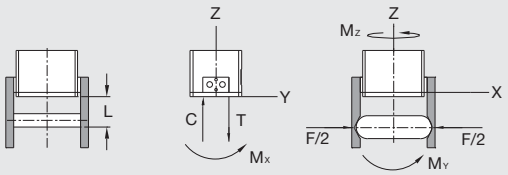




Loading Capacity†

	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	1500 lbs.	6672 N	250 lbs.	1112 N
Maximum Compressive **C**	3000 lbs.	13345 N	250 lbs.	1112 N
Maximum Moment **Mx**	1500 in.-lbs.	170 Nm	250 in.-lbs.	28 Nm
Maximum Moment **My**	1500 in.-lbs.	170 Nm	250 in.-lbs.	28 Nm
Maximum Moment **Mz**	1500 in.-lbs.	170 Nm	250 in.-lbs.	28 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

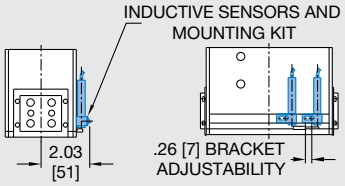
BASIC MODEL — VITON® SEALS

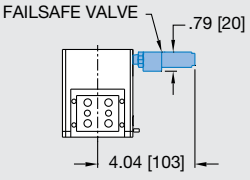
RP-18 M - V

METRIC

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	**OSMK-072**	**1**
NPN Inductive Sensor with Quick Disconnect*	**OISN-011**	**1 or 2**
PNP Inductive Sensor with Quick Disconnect*	**OISP-011**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	**OFSV-002**	**1**
Fail Safe Valve (Metric)	**OFSV-005**	**1**
Standard Seal Repair Kit	**SLKT-043**	**1**
Viton® Seal Repair Kit	**SLKT-043V**	**1**

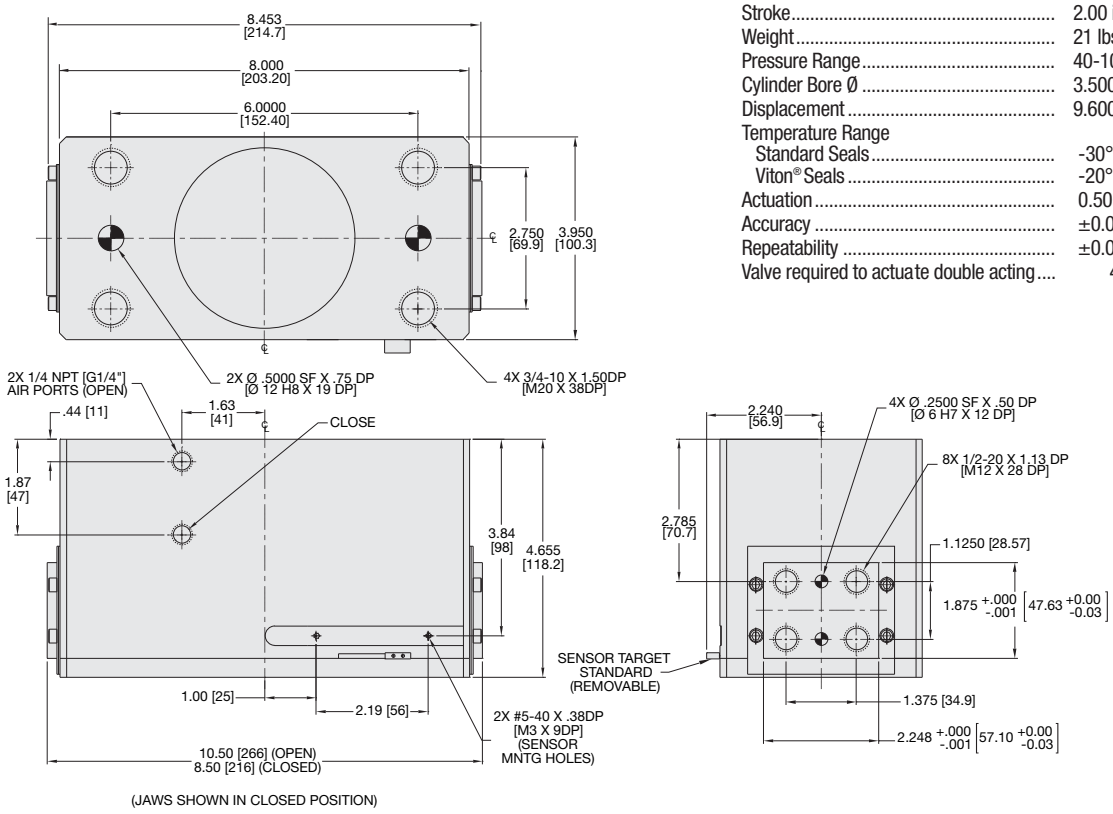
*Sensor and cable sold separately.





PARALLEL GRIPPER RP-19M
DOUBLE WEDGE SERIES

Specifications	RP-19	RP-19M
Total Rated Grip Force **F** @ 100 psi, 7 bar	600 lbs.	2669 N
Stroke	2.00 in.	50.8 mm
Weight	21 lbs.	9.5 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	3.500 in.	88.9 mm
Displacement	9.600 in³	157.3 cm³
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.50 sec.	0.50 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate double acting	4-way, 2-position	



(JAWS SHOWN IN CLOSED POSITION)

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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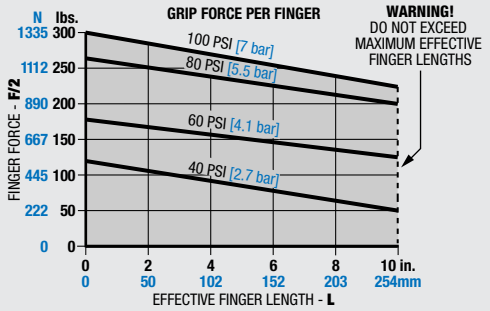
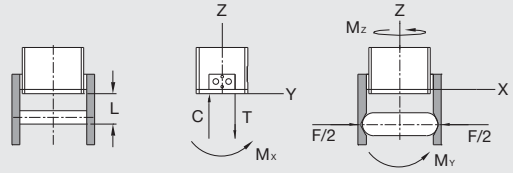




Loading Capacity†

	Static		Dynamic	
	Imperial	Metric	Imperial	Metric
Maximum Tensile **T**	3000 lbs.	13345 N	300 lbs.	1334 N
Maximum Compressive **C**	6000 lbs.	26689 N	300 lbs.	1334 N
Maximum Moment M_X	5000 in.-lbs.	565 Nm	500 in.-lbs.	56 Nm
Maximum Moment M_Y	5000 in.-lbs.	565 Nm	500 in.-lbs.	56 Nm
Maximum Moment M_Z	5000 in.-lbs.	565 Nm	500 in.-lbs.	56 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

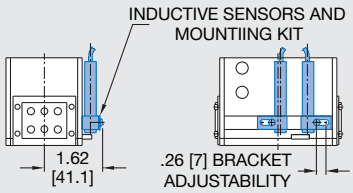
BASIC MODEL — VITON® SEALS

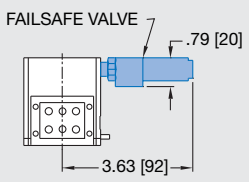
RP-19 M - V

METRIC

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	OSMK-073	1
NPN Inductive Sensor with Quick Disconnect*	OISN-011	1 or 2
PNP Inductive Sensor with Quick Disconnect*	OISP-011	1 or 2
Quick Disconnect 2 Meter Cable Length*	CABL-010	1 or 2
Quick Disconnect 5 Meter Cable Length*	CABL-013	1 or 2
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	OFSV-003	1
Fail Safe Valve (Metric)	OFSV-006	1
Standard Seal Repair Kit	SLKT-044	1
Viton® Seal Repair Kit	SLKT-044V	1

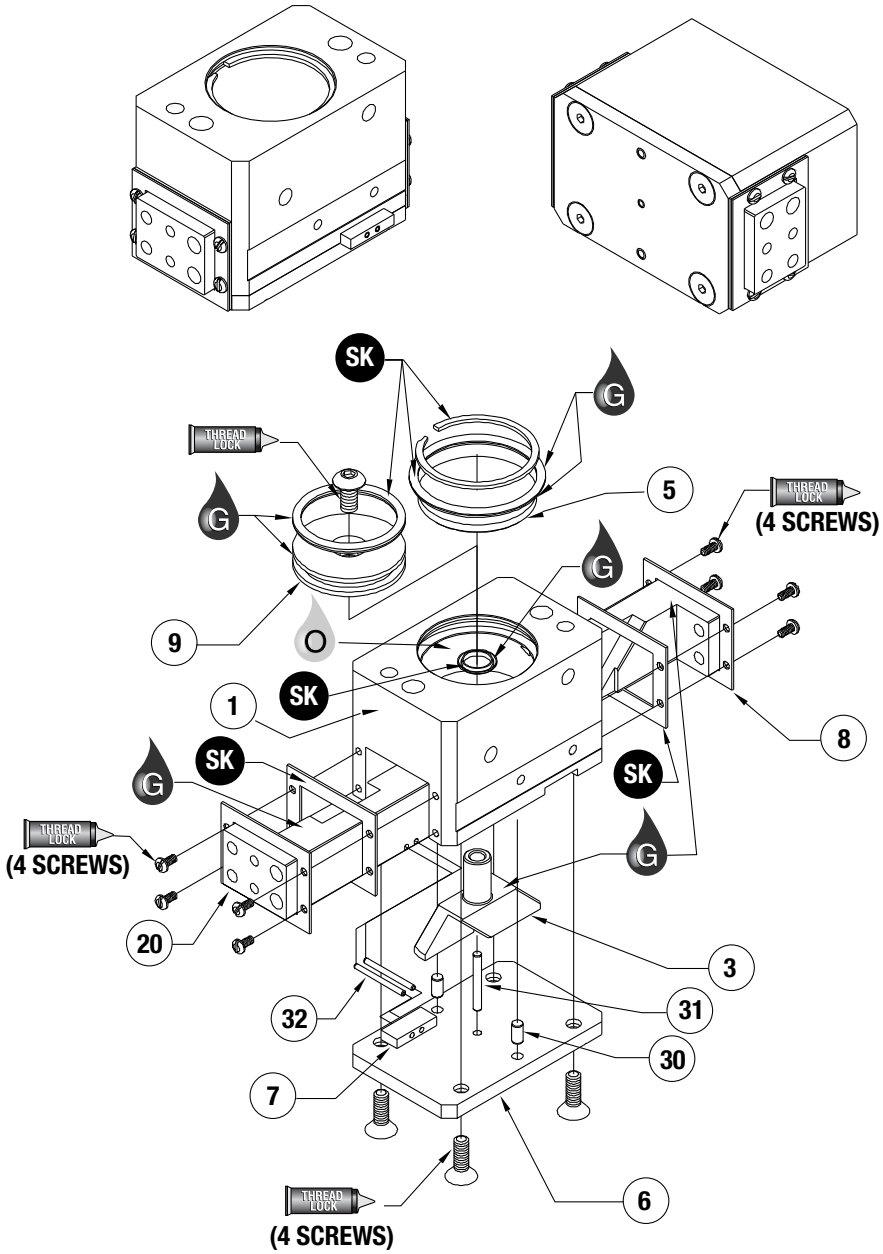
*Sensor and cable sold separately.





RP Double Wedge Series Exploded View

Robohand



Item	Qty	Name
01	1	Body
03	1	Shaft/Wedge
05	1	Cap
06	1	Plate, Bottom
07	1	Target
08	2	Plate,Seal
09	1	Piston
20	2	Jaw,Target Ready
30	2	Dowel Pin
31	1	Dowel Pin
32	2	Roll Pin

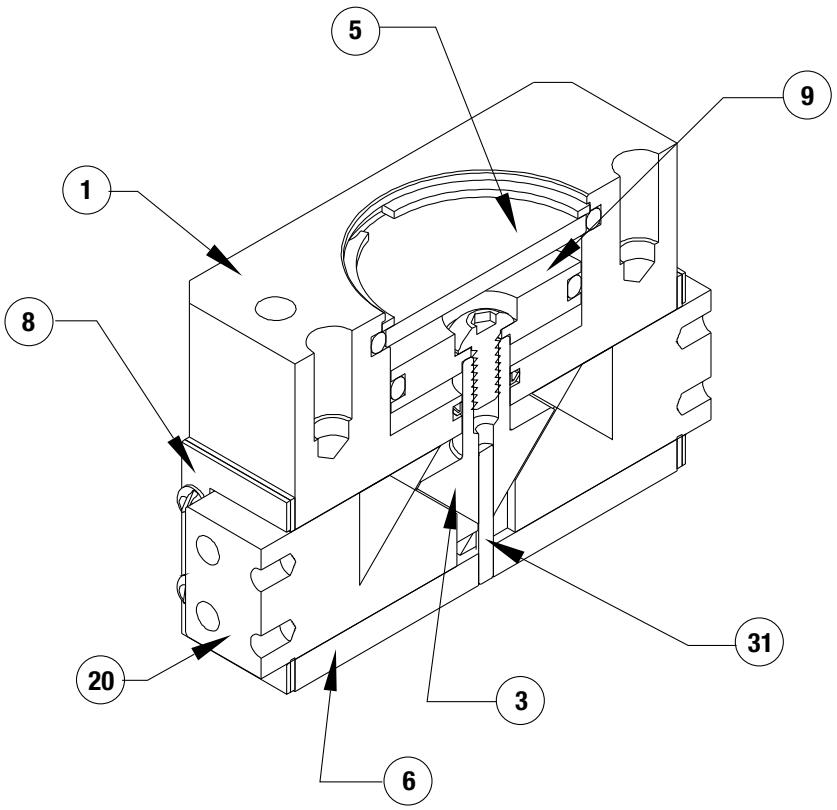
NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedure

1) Lubricate and install seals.
2) Install target on one jaw.
3) Place wedge, shaft and jaws into body.
4) Install piston into body.
5) Install cap and retaining ring.
6) Attach bottom plate to body.

SK Seal Repair Kit Order #'s See Product Data Sheets

RP Double Wedge Series Assembled View



Item	Qty	Name
01	1	Body
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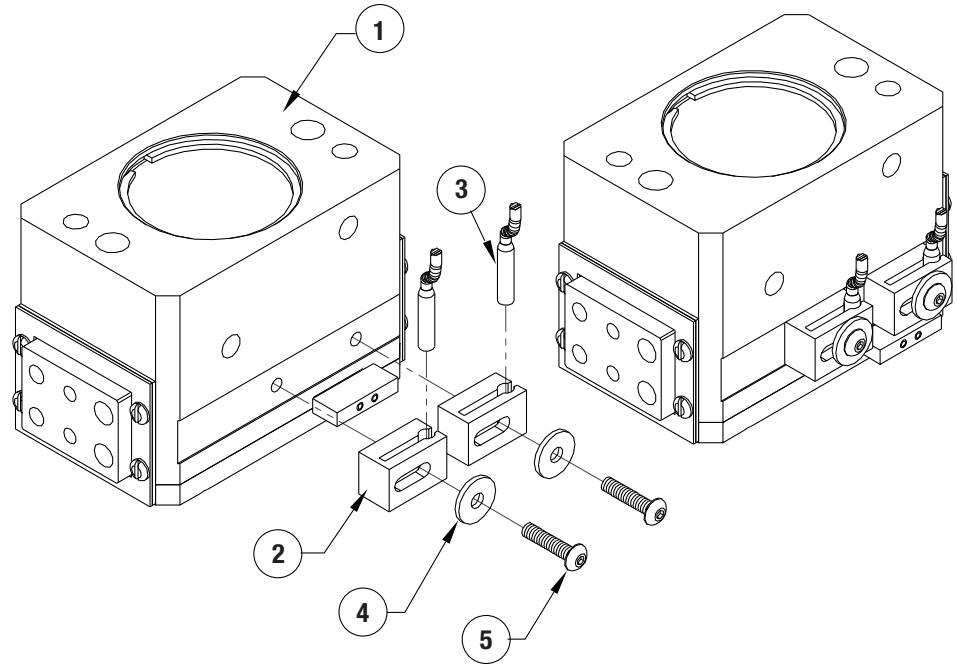
05	1	Cap
06	1	Plate, Bottom
07	1	Target
08	2	Plate,Seal
09	1	Piston
20	2	Jaw,Target Ready
30	2	Dowel Pin
31	1	Dowel Pin
32	2	Roll Pin

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

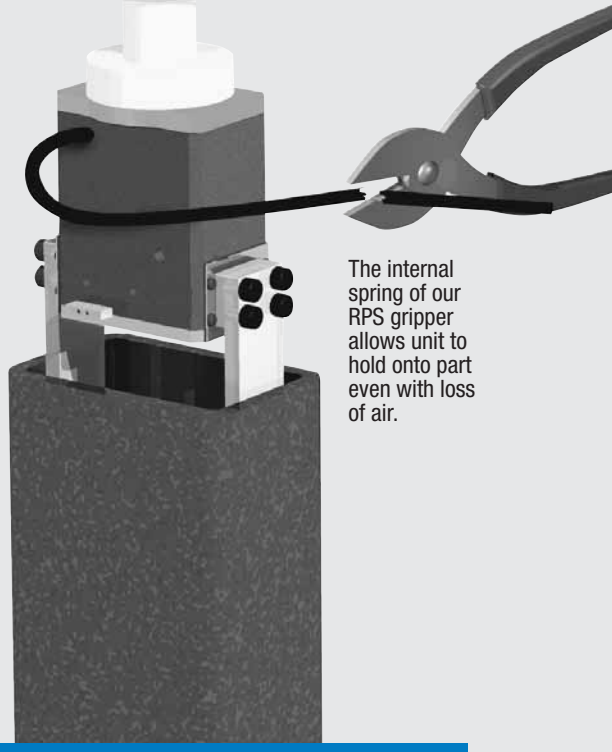
Accessory Installation & Adjustment Instructions



Installation
1) Install sensors as shown.
2) Adjust for desired end of stroke detection.

Parallel Grippers - Spring Assist Series

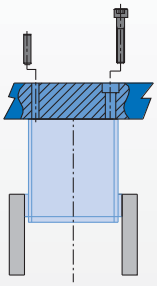
- **Patented double wedge design:** This gripper utilizes our patented double wedge design for actuation and synchronization.
- **Fail safe operation:** The force supplied from the internal spring can be used to maintain gripping force if the gripper looses air pressure.
- **Single acting spring return:** A gripper can be actuated in one direction working against the spring with a single air supply line and actuate in the opposite direction with the force of the spring.
- **Double acting spring assist:** Spring assist along with the pressurized gripping motion generates resulting grip force that is greatly increased allowing higher grip forces at lower air pressures.
- **Internal or external gripping:** This gripper is available in a spring closed model (**-C**) for external gripping or spring open model (**-O**) for internal gripping.



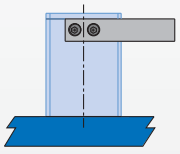
The internal spring of our RPS gripper allows unit to hold onto part even with loss of air.

Mounting Information:

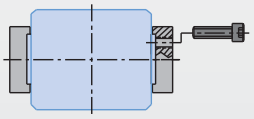
Grippers can be mounted & operated in any orientation

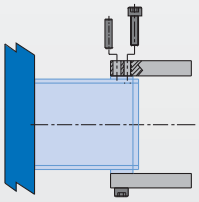


Body mounts with screws and locates with dowel pins for accuracy



Unit can be mounted and operated upside down





Fingers attach to jaws with screws and locate by keying or dowel pins

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**50-100 psi**	**3.5-7 bar**
Cylinder Type	**Double Acting Spring Assist *or* Single Acting Spring Return**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position for Double Acting *or* 3-way, 2-position for Single Acting**	

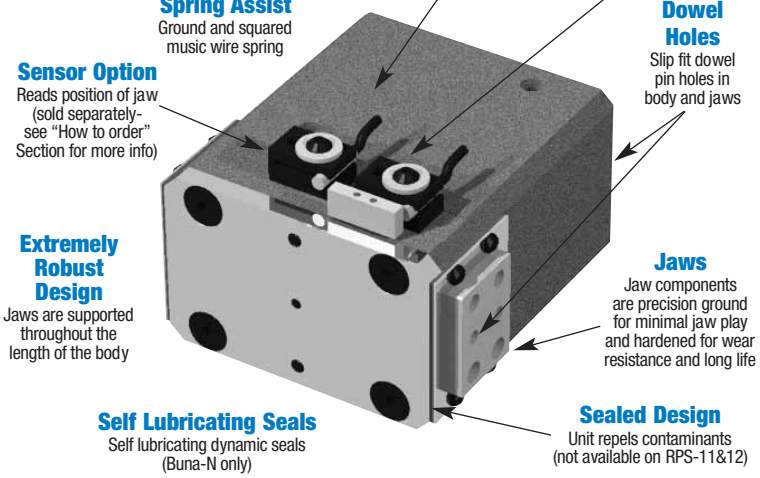
Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~300° F**	**-30°~150° C**

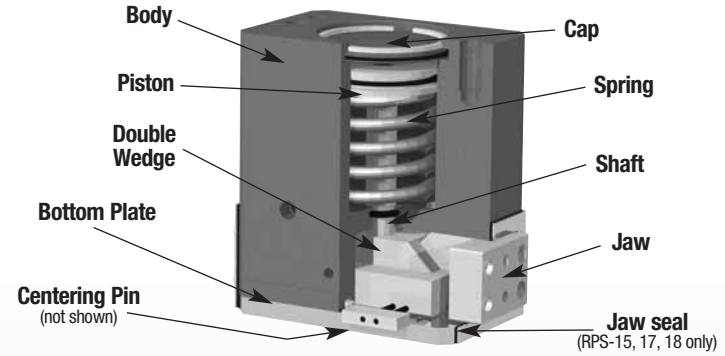
Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

*Addition of lubrication will greatly increase service life
†See Maintenance Section

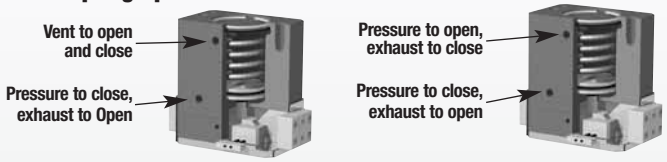
Product Features



Operating Principle (RPS-C shown)

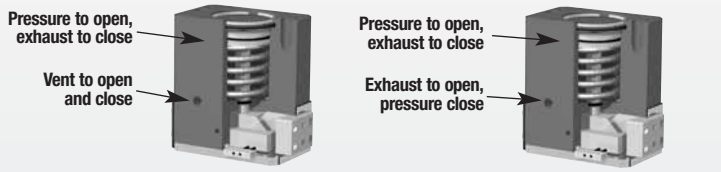


RPS-O Spring Open



Single Acting Spring Open — Double Acting Spring Assist Open

RPS-C Spring Closed



Single Acting Spring Closed — Double Acting Spring Assist Closed

- A double acting piston is connected by a shaft to a double sided wedge.
- The wedge slides in a slot located in each of the jaws converting vertical motion of the wedge into horizontal synchronous motion of the ja ws.
- The large surface area of the wedge minimizes frictional wear.
- The built-in cylinder and spring can be used as either a double acting cylinder with spring assist or as a single acting c ylinder with spring return.
- This gripper is suitable for internal or external gripping.

U.S. Patent # 5,125,708 Designed and manufactured in the USA

Style-RP-5-FS Spring Gripper
Size-5

See Page 1.142

Style-RPS Spring Gripper
Size-11M

Style:	RPS-11	RPS-11M
Stroke:	0.25 in.	6.4 mm
Grip Force:	50 lb	222 N
Weight:	.36 lb	.16 Kg

See Page 1.158

Style-RPS Spring Gripper
Size-12M

Style:	RPS-12	RPS-12M
Stroke:	0.38 in.	9.5 mm
Grip Force:	60 lb	270 N
Weight:	.76 lb	.34 Kg

See Page 1.159

Style-RPS Spring Gripper
Size -15M

Style:	RPS-15	RPS-15M
Stroke:	0.50 in.	12.7 mm
Grip Force:	90 lb	400 N
Weight:	1.44 lb	.65 Kg

See Page 1.160

Style-RPS Spring Gripper
Size -17M

Style:	RPS-17	RPS-17M
Stroke:	0.75 in.	19.1 mm
Grip Force:	300 lb	1334 N
Weight:	3.0 lb	1.4 Kg

See Page 1.161

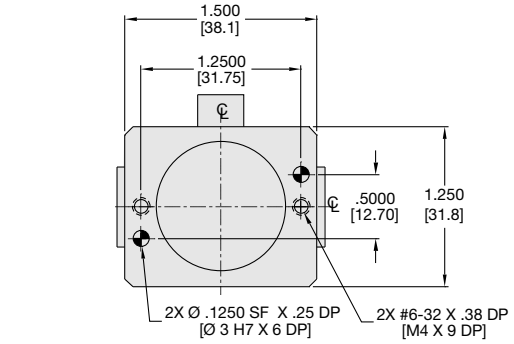
Style-RPS Spring Gripper
Size -18M

Style:	RPS-18	RPS-18M
Stroke:	1.25 in.	31.8 mm
Grip Force:	600 lb	2669 N
Weight:	11 lb	5.0 Kg

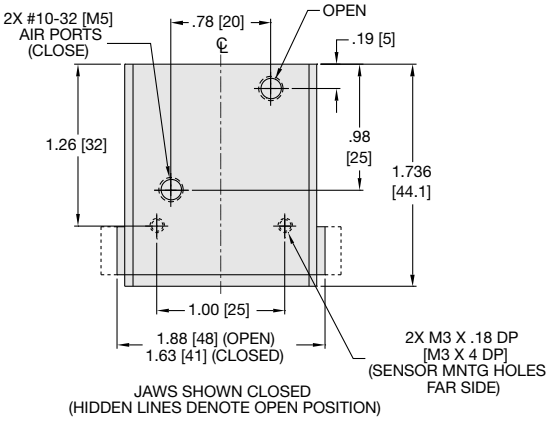
See Page 1.162

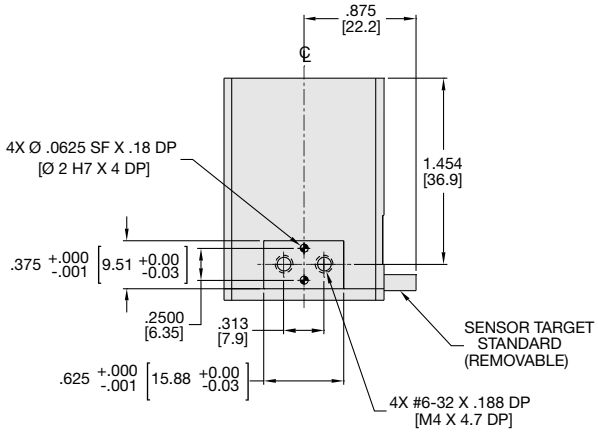
PARALLEL GRIPPER RPS-11M
SPRING ASSISTED DOUBLE WEDGE SERIES

Robohand



Specifications	RPS-11	RPS-11M
Total Rated Grip Force **F** @ 100 psi, 7 bar	50 lbs.	222 N
Stroke	0.25 in.	6.4 mm
Weight	0.36 lbs.	0.16 Kg
Pressure Range	50-100 psi	3.4-7 bar
Cylinder Bore Ø	1.00 in.	25.4 mm
Displacement	0.098 in^3.	1.6 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.15 sec.	0.15 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate single acting	3 way, 2-position	
Valve required to actuate double acting	4-way, 2-position	





UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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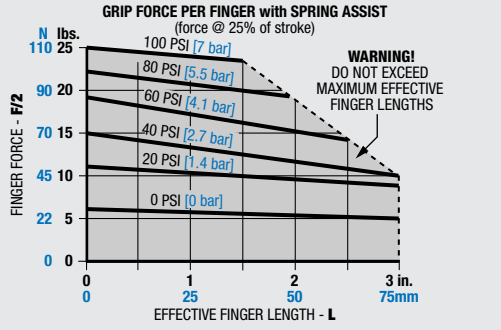
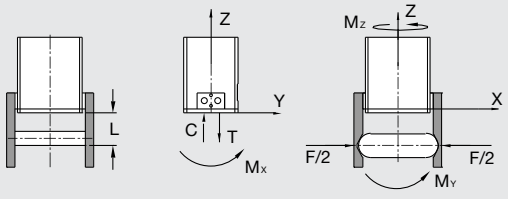




Loading Capacity †	Static	Dynamic
Maximum Tensile **T**	100 lbs. [445 N]	25 lbs. [111 N]
Maximum Compressive **C**	200 lbs. [890 N]	25 lbs. [111 N]
Maximum Moment **Mx**	100 in.-lbs. [11 Nm]	25 in.-lbs. [3 Nm]
Maximum Moment **My**	100 in.-lbs. [11 Nm]	25 in.-lbs. [3 Nm]
Maximum Moment **Mz**	100 in.-lbs. [11 Nm]	25 in.-lbs. [3 Nm]

† Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL — SPRING DIRECTION (See below)

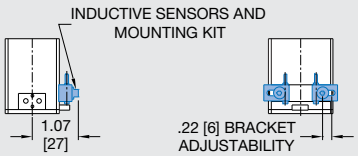
RPS-11 M - ☐ - V

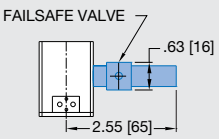
METRIC — VITON® SEALS

SPRING DIRECTION **O** Spring Open
C Spring Closed

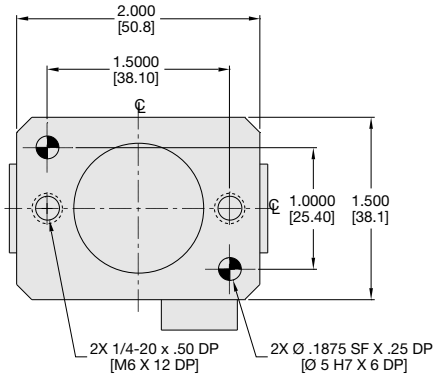
SENSOR ACCESSORIES	Order #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	**OSMK-003**	**1**
3mm NPN Inductive Sensor with Quick Disconnect*	**OISN-019**	**1 or 2**
3mm PNP Inductive Sensor with Quick Disconnect*	**OISP-019**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	**OFSV-001**	**1**
Fail Safe Valve (Metric)	**OFSV-004**	**1**
Standard Seal Repair Kit	**SLKT-036**	**1**
Viton® Seal Repair Kit	**SLKT-036V**	**1**

*Sensor and cable sold separately.

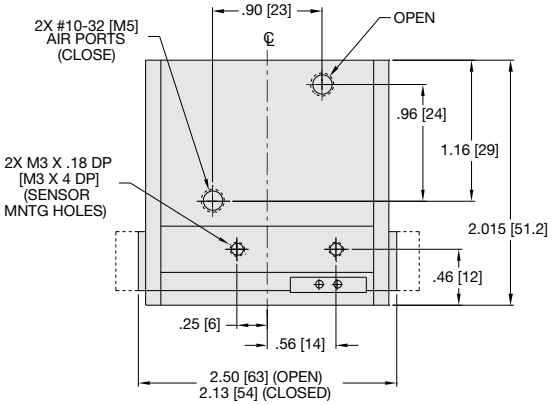




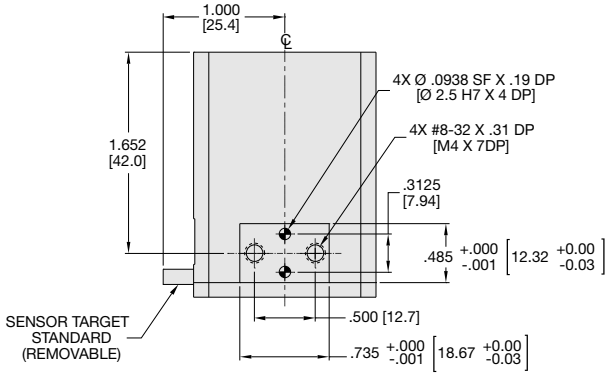
PARALLEL GRIPPER RPS-12M
SPRING ASSISTED DOUBLE WEDGE SERIES



Specifications	RPS-12	RPS-12M
Total Rated Grip Force **F** @ 100 psi, 7 bar	60 lbs.	267 N
Stroke	0.38 in.	9.5 mm
Weight	0.76 lbs.	0.34 Kg
Pressure Range	50-100 psi	3.4-7 bar
Cylinder Bore Ø	1.000 in.	25.4 mm
Displacement	0.150 in^3.	2.5 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.15 sec.	0.15 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate single acting	3 way, 2-position	
Valve required to actuate double acting	4-way, 2-position	



JAWS SHOWN IN CLOSED POSITION
(HIDDEN LINES DENOTE OPEN POSITION)



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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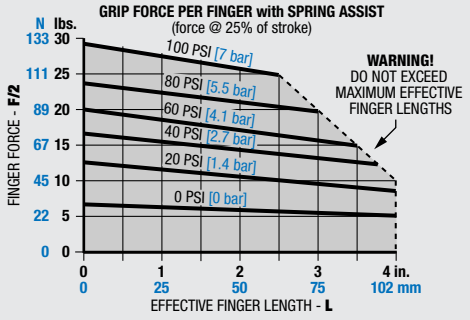
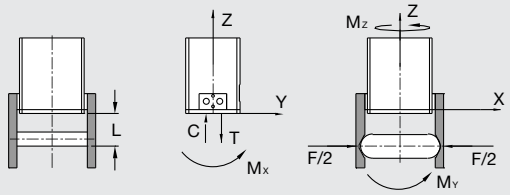




Loading Capacity †	Static	Dynamic
Maximum Tensile **T**	200 lbs. [890 N]	50 lbs. [222 N]
Maximum Compressive **C**	400 lbs. [1779 N]	50 lbs. [222 N]
Maximum Moment **Mx**	150 in.-lbs. [17 Nm]	50 in.-lbs. [6 Nm]
Maximum Moment **My**	150 in.-lbs. [17 Nm]	50 in.-lbs. [6 Nm]
Maximum Moment **Mz**	150 in.-lbs. [17 Nm]	50 in.-lbs. [6 Nm]

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL — SPRING DIRECTION (See below)

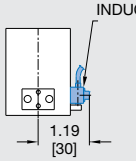
RPS-12 M - ☐ - V

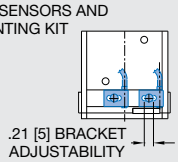
METRIC — VITON® SEALS

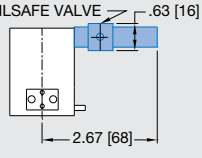
SPRING DIRECTION **O** Spring Open
C Spring Closed

SENSOR ACCESSORIES	Order #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	**OSMK-003**	**1**
3mm NPN Inductive Sensor with Quick Disconnect*	**OISN-019**	**1 or 2**
3mm PNP Inductive Sensor with Quick Disconnect*	**OISP-019**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	**OFSV-001**	**1**
Fail Safe Valve (Metric)	**OFSV-004**	**1**
Standard Seal Repair Kit	**SLKT-040**	**1**
Viton® Seal Repair Kit	**SLKT-040V**	**1**

*Sensor and cable sold separately.

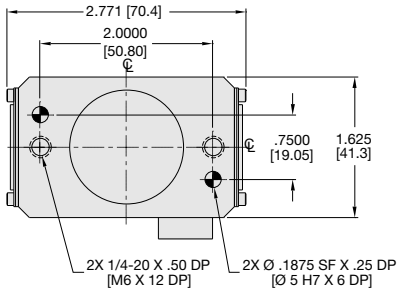




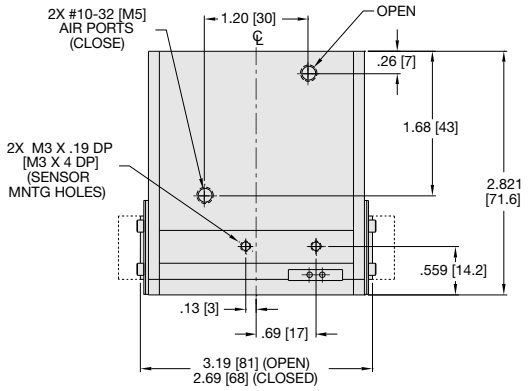


PARALLEL GRIPPER RPS-15M
SPRING ASSISTED DOUBLE WEDGE SERIES

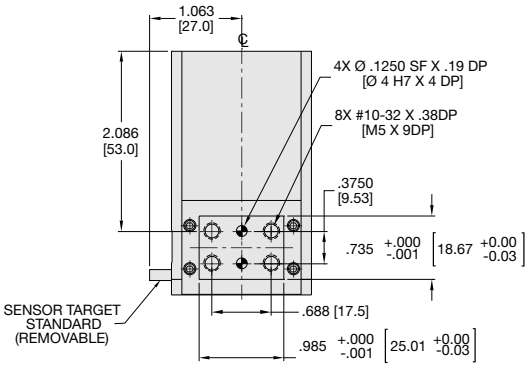
Robohand



Specifications	RPS-15	RPS-15M
Total Rated Grip Force **F** @ 100 psi, 7 bar	90 lbs.	400 N
Stroke	0.50 in.	12.7 mm
Weight	1.44 lbs.	0.65 Kg
Pressure Range	50-100 psi	3.4-7 bar
Cylinder Bore Ø	1.250 in.	31.8 mm
Displacement	0.300 in^3	4.9 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.17 sec.	0.17 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate single acting	3 way, 2 position	
Valve required to actuate double acting	4-way, 2-position	



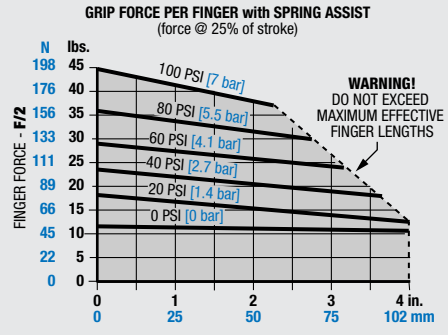
JAWS SHOWN IN CLOSED POSITION
(HIDDEN LINES DENOTE OPEN POSITION)

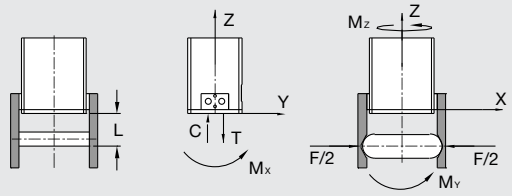


UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [±.25]
				0.000 = ± .005	[0.0] = [±.13]
				0.0000 = ± .0005	[0.00] = [±.013]

Loading Information





Loading Capacity †	Static	Dynamic
Maximum Tensile **T**	400 lbs. [1779 N]	100 lbs. [445 N]
Maximum Compressive **C**	750 lbs. [3336 N]	100 lbs. [445 N]
Maximum Moment **Mx**	300 in.-lbs. [34 Nm]	100 in.-lbs. [11 Nm]
Maximum Moment **My**	300 in.-lbs. [34 Nm]	100 in.-lbs. [11 Nm]
Maximum Moment **Mz**	300 in.-lbs. [34 Nm]	100 in.-lbs. [11 Nm]

† Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL — SPRING DIRECTION (See below)

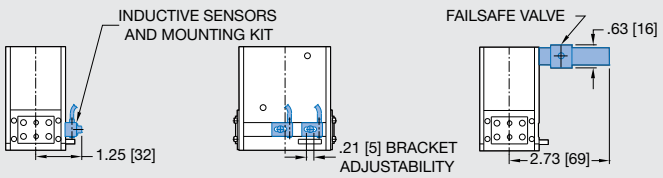
RPS-15 M - ☐ - V

METRIC — VITON® SEALS

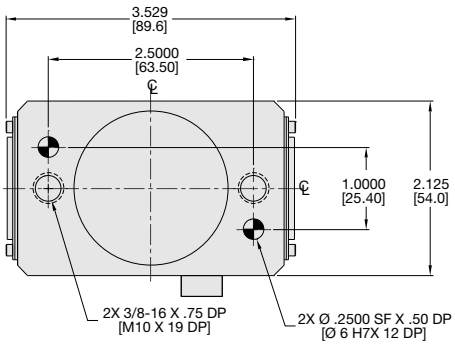
SPRING DIRECTION **O** Spring Open
C Spring Closed

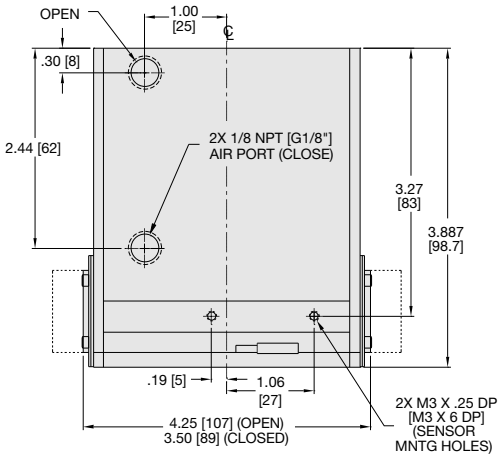
SENSOR ACCESSORIES	Order #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	**OSMK-003**	**1**
3mm NPN Inductive Sensor with Quick Disconnect*	**OISN-019**	**1 or 2**
3mm PNP Inductive Sensor with Quick Disconnect*	**OISP-019**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	**OFSV-001**	**1**
Fail Safe Valve (Metric)	**OFSV-004**	**1**
Standard Seal Repair Kit	**SLKT-041**	**1**
Viton® Seal Repair Kit	**SLKT-041V**	**1**

*Sensor and cable sold separately.

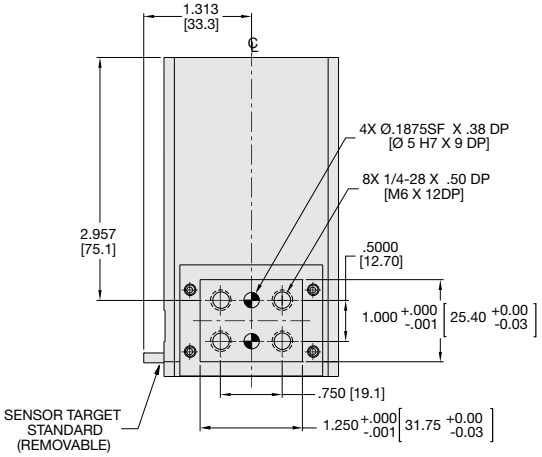


PARALLEL GRIPPER RPS-17M
SPRING ASSISTED DOUBLE WEDGE SERIES





JAWS SHOWN IN CLOSED POSITION
(HIDDEN LINES DENOTE OPEN POSITION)



Specifications	RPS-17	RPS-17M
Total Rated Grip Force **F** @ 100 psi, 7 bar	300 lbs.	1334 N
Stroke	0.75 in.	19.1 mm
Weight	3.00 lbs.	1.4 Kg
Pressure Range	50-100 psi	3.4-7 bar
Cylinder Bore Ø	1.813 in.	46.1 mm
Displacement	1.400 in^3	22.9 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.31 sec.	0.31 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate single acting	3 way, 2 position	
Valve required to actuate double acting	4-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

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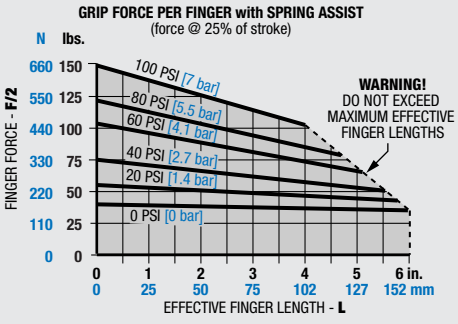
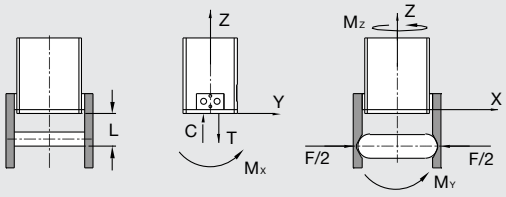




Loading Capacity †	Static		Dynamic	
Maximum Tensile **T**	750 lbs.	[3336 N]	200 lbs.	[890 N]
Maximum Compressive **C**	1500 lbs.	[6672 N]	200 lbs.	[890 N]
Maximum Moment **Mx**	750 in.-lbs.	[85 Nm]	250 in.-lbs.	[28 Nm]
Maximum Moment **My**	750 in.-lbs.	[85 Nm]	250 in.-lbs.	[28 Nm]
Maximum Moment **Mz**	750 in.-lbs.	[85 Nm]	250 in.-lbs.	[28 Nm]

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL — SPRING DIRECTION (See below)

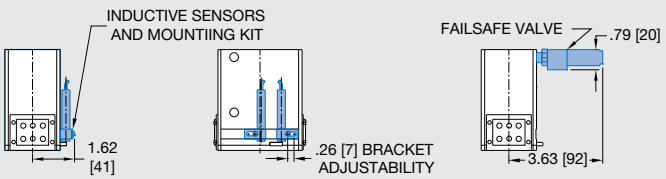
RPS-17 M - ☐ - V

METRIC — VITON® SEALS

SPRING DIRECTION **O** Spring Open
C Spring Closed

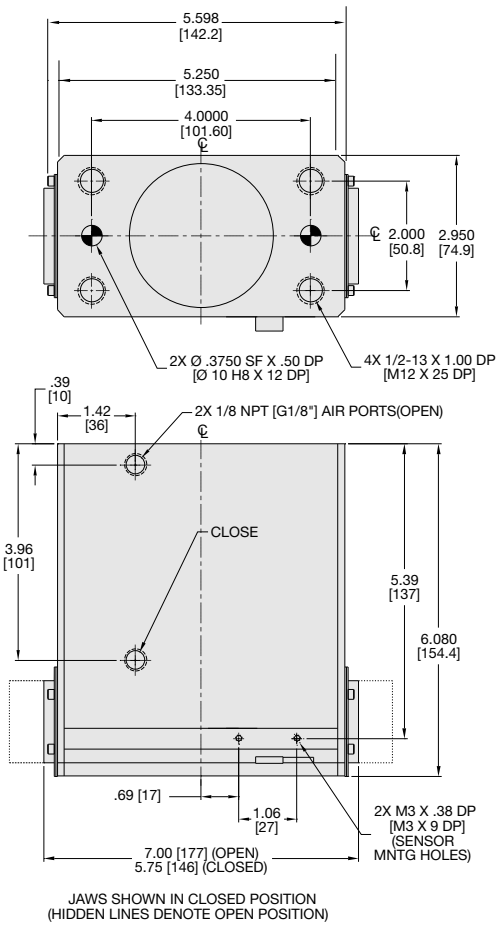
SENSOR ACCESSORIES	Order #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	**OSMK-072**	**1**
8mm NPN Inductive Sensor with Quick Disconnect*	**OISN-011**	**1 or 2**
8mm PNP Inductive Sensor with Quick Disconnect*	**OISP-011**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	**OFSV-002**	**1**
Fail Safe Valve (Metric)	**OFSV-005**	**1**
Standard Seal Repair Kit	**SLKT-042**	**1**
Viton® Seal Repair Kit	**SLKT-042V**	**1**

*Sensor and cable sold separately.

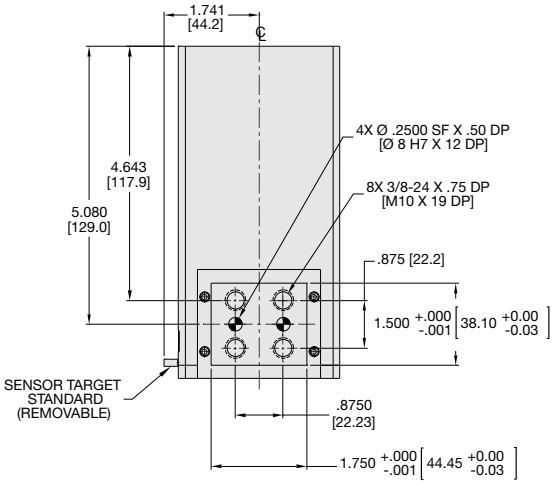


PARALLEL GRIPPER RPS-18M
SPRING ASSISTED DOUBLE WEDGE SERIES

Robohand



JAWS SHOWN IN CLOSED POSITION
(HIDDEN LINES DENOTE OPEN POSITION)



Specifications	RPS-18	RPS-18M
Total Rated Grip Force **F** @ 100 psi, 7 bar	600 lbs.	2669 N
Stroke	1.25 in.	31.8 mm
Weight	11 lbs.	5.0 Kg
Pressure Range	50-100 psi	3.4-7 bar
Cylinder Bore Ø	2.500 in.	63.5 mm
Displacement	4.400 in^3.	72.1 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.51 sec.	0.51 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate single acting	3 way, 2 position	
Valve required to actuate double acting	4-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

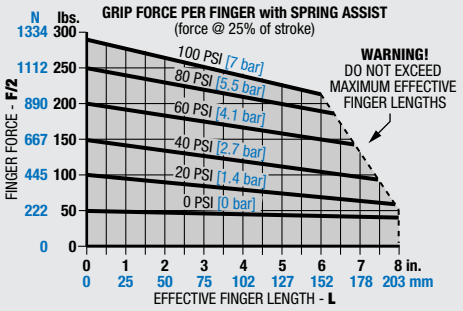
Third Angle Projection

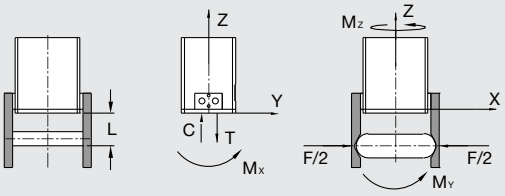
All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

Loading Information





Loading Capacity †	Static	Dynamic
Maximum Tensile **T**	1500 lbs. [6672 N]	500 lbs. [2224 N]
Maximum Compressive **C**	3000 lbs. [13345 N]	500 lbs. [2224 N]
Maximum Moment **Mx**	1500 in.-lbs. [170 Nm]	500 in.-lbs. [57 Nm]
Maximum Moment **My**	1500 in.-lbs. [170 Nm]	500 in.-lbs. [57 Nm]
Maximum Moment **Mz**	1500 in.-lbs. [170 Nm]	500 in.-lbs. [57 Nm]

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL — SPRING DIRECTION (See below)

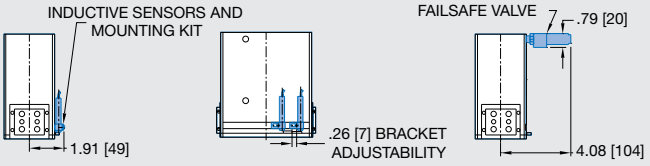
RPS-18M-□-V

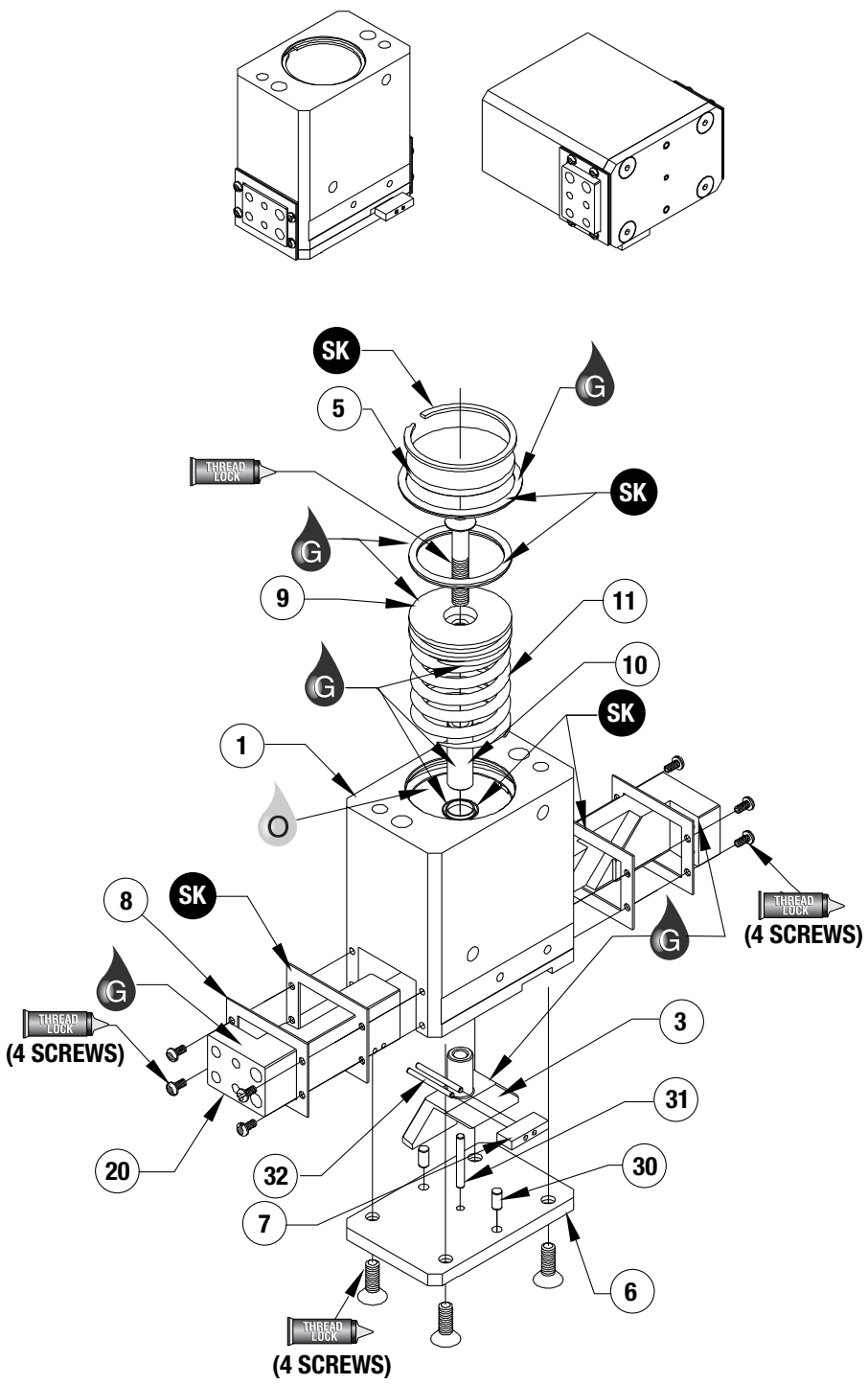
METRIC — VITON® SEALS

SPRING DIRECTION **O** Spring Open
C Spring Closed

SENSOR ACCESSORIES	Order #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	**OSMK-072**	**1**
8mm NPN Inductive Sensor with Quick Disconnect*	**OISN-011**	**1 or 2**
8mm PNP Inductive Sensor with Quick Disconnect*	**OISP-011**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	**OFSV-002**	**1**
Fail Safe Valve (Metric)	**OFSV-005**	**1**
Standard Seal Repair Kit	**SLKT-043**	**1**
Viton® Seal Repair Kit	**SLKT-043V**	**1**

*Sensor and cable sold separately.





Item	Qty	Name
01	1	Body
03	1	Shaft/Wedge
05	1	Cap
06	1	Plate, Bottom
07	1	Target
08	2	Plate, Seal
09	1	Piston
10*	1	Extension, Shaft
11	1	Spring
20	2	Jaw, Target Ready
30	2	Dowel Pin
31	1	Dowel Pin
32	2	Roll Pin

* -C Only

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedure

1) Lubricate and install seals
2) Install target on one jaw
3) Place wedge, shaft, and jaws into body
4) Install piston and spring into body
5) Install cap and retaining ring
6) Attach bottom plate to body

NOTE: -C Mode Shown

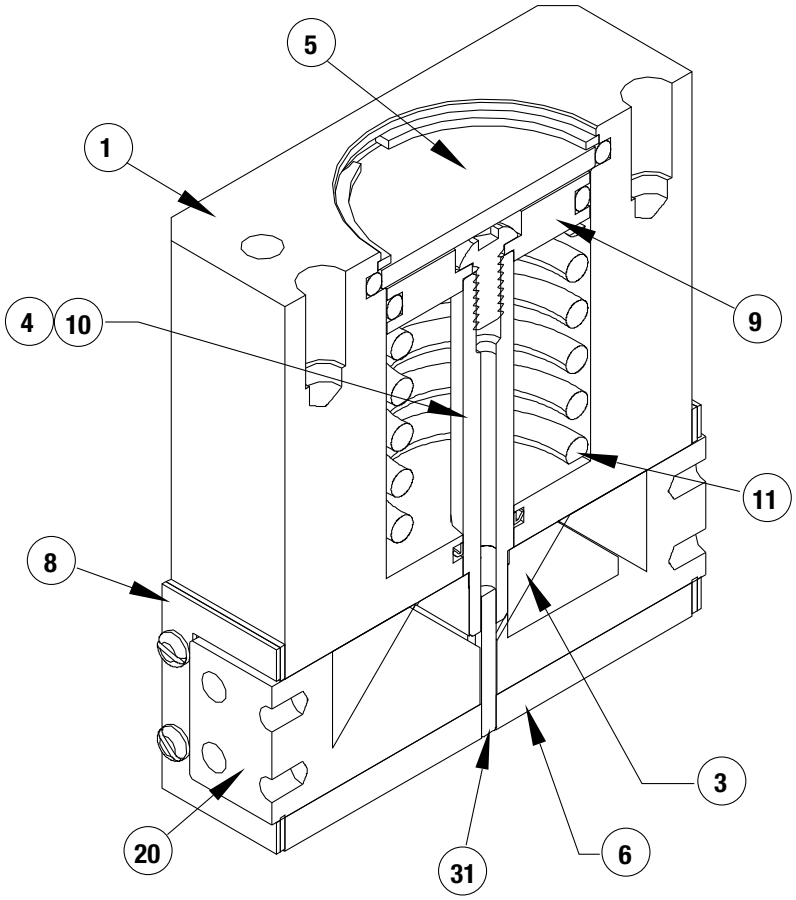
SK **Seal Repair Kit Order #'s See Product Data Sheets**

SAFETY WARNING: USE CAUTION WHEN ASSEMBLING AND DISASSEMBLING. GRIPPER CONTAINS COMPRESSION SPRING UNDER FORCE.

RPS Series Assembled View

Robohand

SAFETY WARNING: USE CAUTION WHEN ASSEMBLING AND DISASSEMBLING. GRIPPER CONTAINS COMPRESSION SPRING UNDER FORCE.



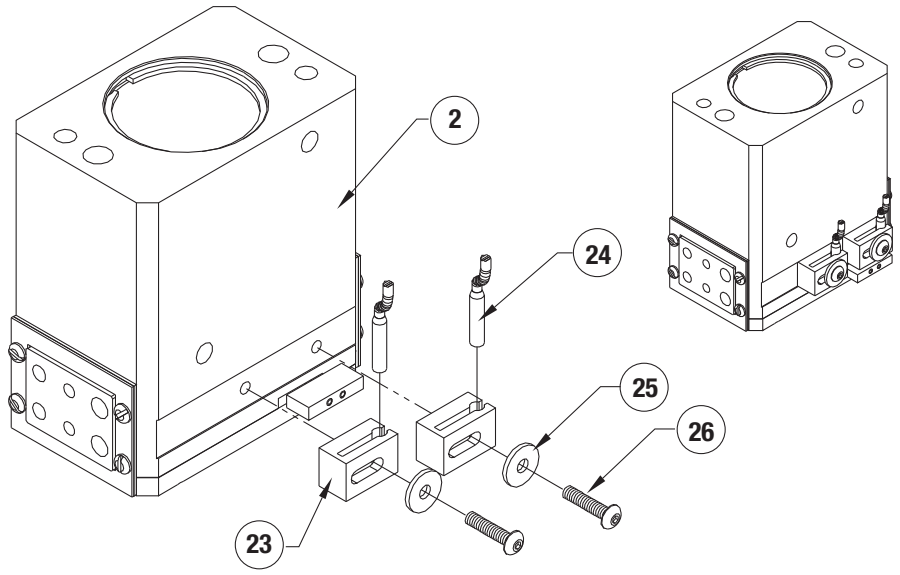
Item	Qty	Name
01	1	Body
03	1	Shaft/Wedge
05	1	Cap
06	1	Plate, Bottom
07	1	Target
08	2	Plate, Seal
09	1	Piston
10*	1	Extension, Shaft
11	1	Spring
20	2	Jaw, Target Ready
30	2	Dowel Pin
31	1	Dowel Pin
32	2	Roll Pin

* -C Only

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

NOTE: -C Mode Shown.

Accessory Installation & Adjustment Instructions



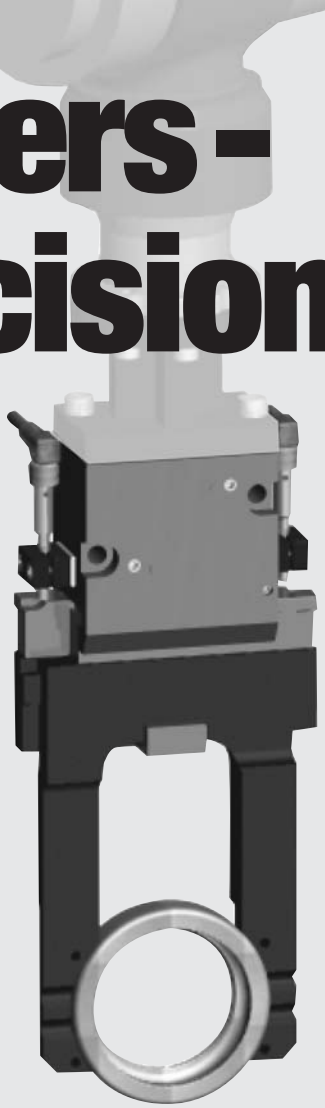
Installation

1. Install sensors as shown.
2. Adjust for end stroke sensing.

DESIGN NOTES

QUALITY PRECISION DURABILITY

Parallel Grippers - Two Jaw Precision Spring Series

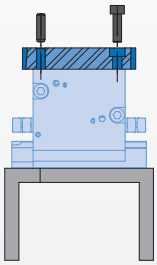


- **Compact and shielded gripper:** This gripper is designed for use in confined spaces, combining long strokes with a high grip force. Standard safety springs retain the components should the air supply fail, or during gripping, the spring provides additional gripforce.
- **Multipurpose gripper:** The safety springs allow this gripper to be used to clamp on arbor or in bore without the need for any modifications. All the user has to do is to change the jaw position in the jaw holders.
- **Harsh environments:** Shielded design repels chips and other particulate from internal drive mechanism.

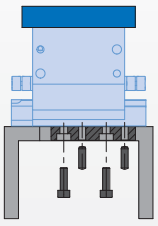
Mounting Information:

Grippers can be mounted & operated in any orientation

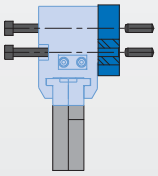
The gripper is protected from falling debris when it is mounted and operated upside down.



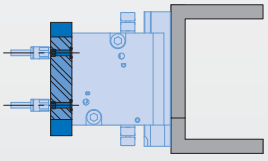
Gripper is located from the top with 2 dowel pins and assembled with 2 screws (by pulling).



Fingers are located on jaws with 2 dowel pins and assembled with 2 screws.



Gripper is located on the side with 2 dowel pins and assembled with 2 through body screws.



Gripper can be operated utilizing top manifold air ports.

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**45-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting Spring Assist *or* Single Acting Spring Return**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position for Double Acting *or* 3-way, 2-position for Single Acting**	

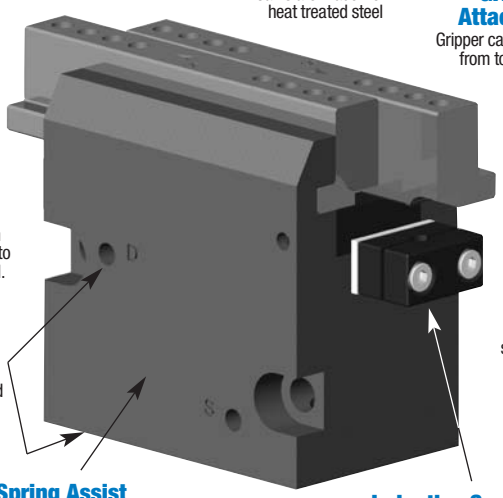
Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (Standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (Optional)	**-20°~300° F**	**-30°~150° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features



Quality Components
Made from Aluminum alloy with hard coat anodized with Teflon™ Impregnation. The gripper's main components are made of heat treated steel.

Jaws
Jaws are made from heat treated steel

Gripper Attachment
Gripper can be mounted from top or sides

Jaw Attachment
Each jaw allows jaw attachment for gripping on OD or ID

Viton® Seals
Viton® seals for high temperatures (-20°F to +300°F) are optional.

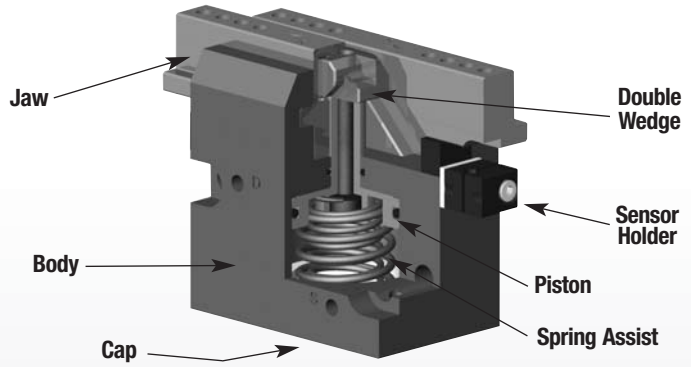
Cover
Gripper body is shielded to repel chips and other particulate from internal drive mechanism.

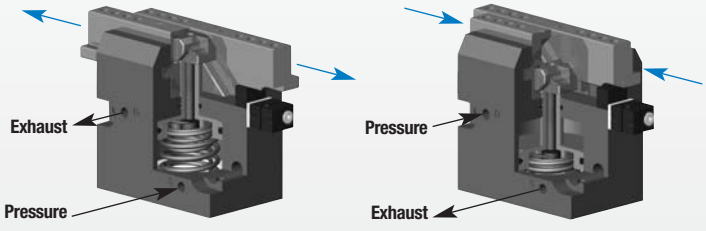
Multiple Air Ports
Side or top manifold air ports.

Spring Assist
Standard springs allow the gripper to retain the component, should the air supply fail or to use the gripper in single acting mode by clamping on the shaft or the bore.

Inductive Sensoring
Standard inductive sensor holders allow you to attach optional inductive sensor to sense up to two ends of stroke (non-adjustable)

Operating Principle





- Two safety springs apply pressure to a piston. One end of the piston is connected to a double wedge that has two opposing racks that slide in the jaw holder slot.
- It converts vertical motion of the piston into horizontal opposite synchronous motion of the 2 jaws.
- In order to benefit from spring power and from pneumatic control power, the pneumatic inlet must be applied to "S" for gripping and with "D" for release. An arrow etched onto each jaw holder indicates the gripping direction.
- Springs can be used to increase the grip force or to hold part in the event of air loss. It also allows the gripper to be used in single acting mode.

Style-GC Parallel Gripper

Size -25

Style:	GC-25	
Stroke:	0.79 in.	20 mm
Grip Force:	106 lbs.	474 N
Weight:	0.77 lbs.	0.35 Kg

See Page 1.168

Style-GC Parallel Gripper

Size -45

Style:	GC-45	
Stroke:	1.18 in.	30 mm
Grip Force:	108 lbs.	481 N
Weight:	1.32 lbs.	0.60 Kg

See Page 1.169

Style-GC Parallel Gripper

Size -65

Style:	GC-65	
Stroke:	1.57 in.	40 mm
Grip Force:	179 lbs.	796 N
Weight:	2.87 lbs.	1.30 Kg

See Page 1.170

Style-GC Parallel Gripper

Size -85

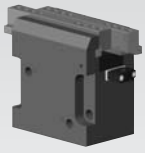
Style:	GC-85	
Stroke:	1.97 in.	50 mm
Grip Force:	333 lbs.	1480 N
Weight:	4.85 lbs.	2.20 Kg

See Page 1.171

Style-GC Parallel Gripper

Size -105

Style:	GC105	
Stroke:	2.36 in.	60 mm
Grip Force:	521 lbs.	2318 N
Weight:	9.50 lbs.	4.31 Kg



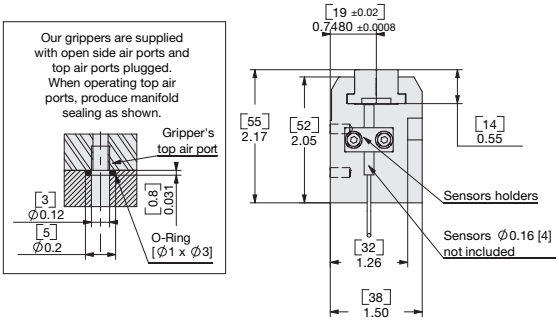
See Page 1.172

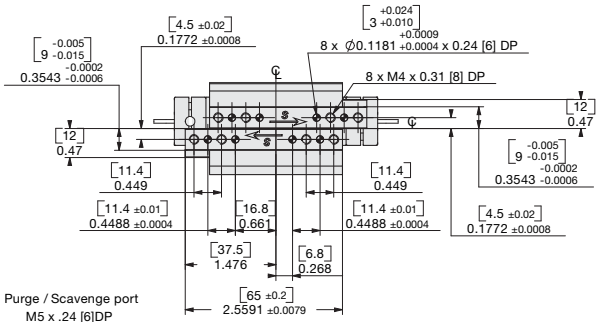
PARALLEL GRIPPER GC-25
TWO JAW PRECISION SPRING ASSIST

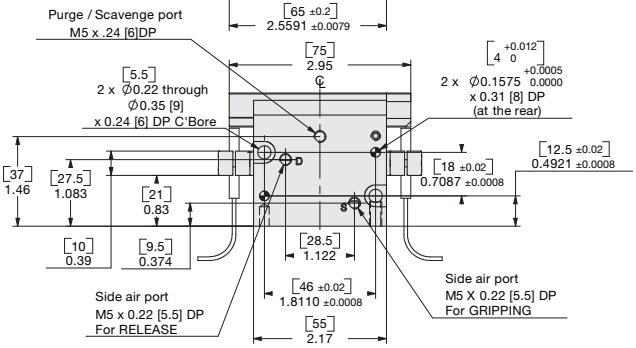
Robohand

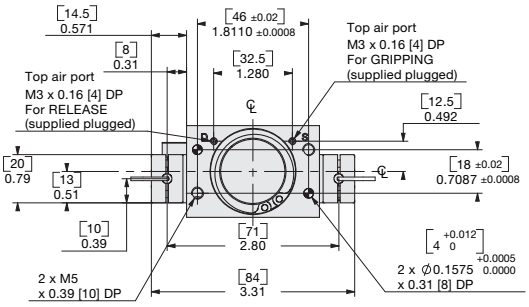
Specifications	GC-25	
Total Rated Grip Force **F** @ 100 psi, 7 bar *	106 lbs.	474 N
Stroke	0.787 in	20 mm
Weight	0.77 lbs.	0.35 kg
Pressure Range	45-100 psi	3-7 bar
Cylinder Bore Ø	1.34 in.	34 mm
Displacement	0.98 in³.	16 cm³
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.2 sec.	0.2 sec.
Accuracy	±0.0009 in.	±0.02 mm
Repeatability	±0.0004 in.	±0.01 mm.
Valve required to actuate single acting	3-way 2-position	
Valve required to actuate double acting	4-way, 2-position	

* With springs.









UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

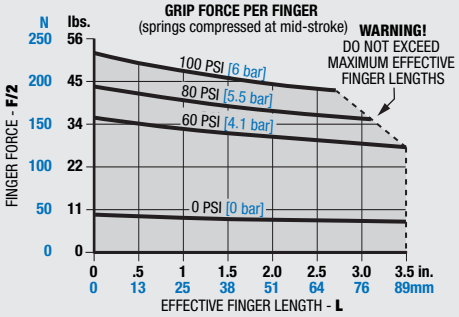
Metric Threads Course Pitch

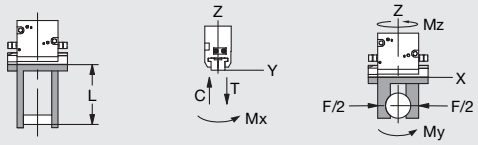
Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

NOTE:
To benefit from safety springs power, on open or on close, gripper must always be operated with "**S**" for GRIPPING and with "**D**" for RELEASE.

Drawing hereafter shows gripper gripping at the end of stroke (inlet through "**S**")

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	28 lbs.	125 N	6 lbs.	25 N
Maximum Compressive **C**	33 lbs.	145 N	7 lbs.	29 N
Maximum Moment M_x	18 in.-lbs.	2 Nm	4 in.-lbs.	0.5 Nm
Maximum Moment M_y	35 in.-lbs.	4 Nm	9 in.-lbs.	1 Nm
Maximum Moment M_z	53 in.-lbs.	6 Nm	13 in.-lbs.	1.5 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL

GC - 25 - V

SIZE — VITON® SEALS

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
4mm PNP Inductive Sensor with Qk Disconnect*	**OISP-014**	**1 or 2**
4mm NPN Inductive Sensor with Qk Disconnect*	**OISN-014**	**1 or 2**
Quick Disconnect 2 Meter Cable*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable*	**CABL-013**	**1 or 2**
PNEUMATIC ACCESSORIES		
Standard Seal Repair Kit	**SLKT-319**	**1**
Viton® Seal Repair Kit	**SLKT-319V**	**1**

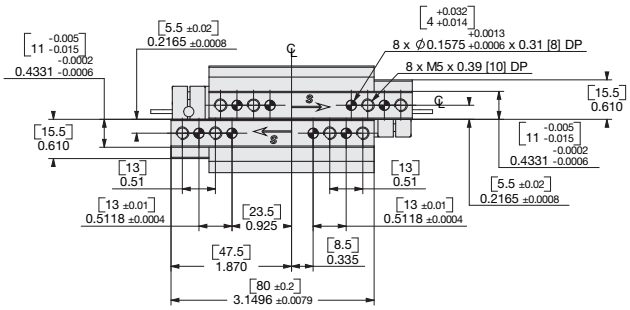
*Sensor and cable sold separately.

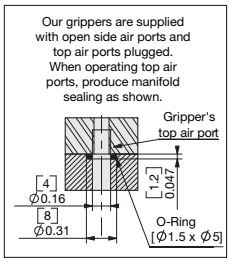
PARALLEL GRIPPER GC-45
TWO JAW PRECISION SPRING ASSIST

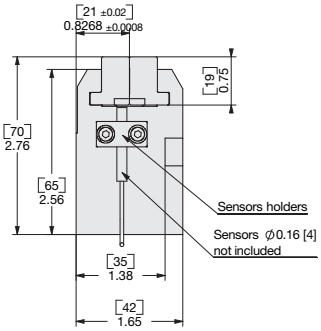
Specifications

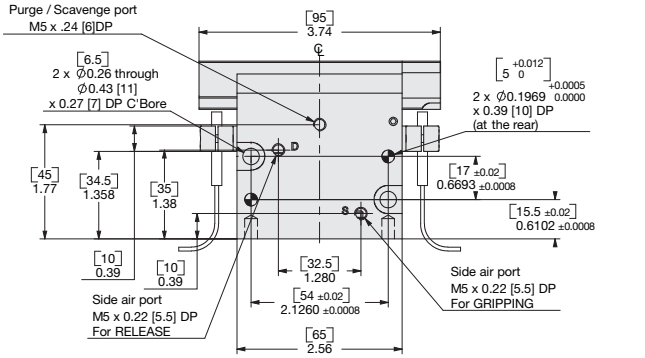
	GC-45	
Total Rated Grip Force **F** @ 100 psi, 7 bar *	108 lbs.	481 N
Stroke	1.181 in	30 mm
Weight	1.32 lbs.	0.60 kg
Pressure Range	45-100 psi	3-7 bar
Cylinder Bore Ø	1.46 in.	37 mm
Displacement	1.77 in³.	29 cm³
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.25 sec.	0.25 sec.
Accuracy	±0.0009 in.	±0.02 mm
Repeatability	±0.0004 in.	±0.01 mm.
Valve required to actuate single acting	3-way 2-position	
Valve required to actuate double acting	4-way, 2-position	

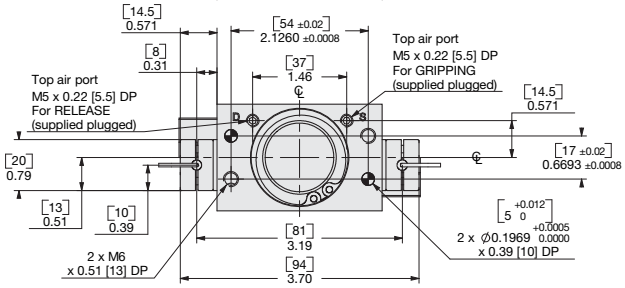
* With springs.











UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

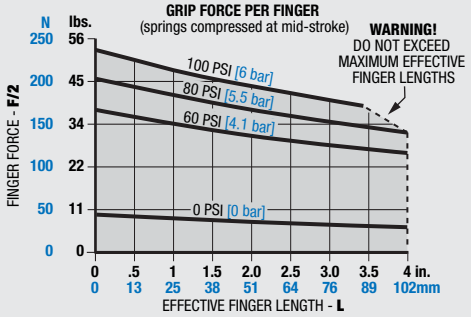
Metric Threads Course Pitch

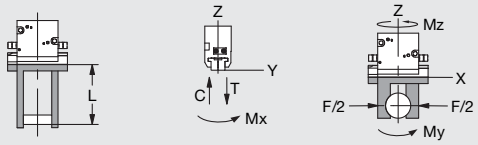
Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

NOTE:
To benefit from safety springs power, on open or on close, gripper must always be operated with "**S**" for GRIPPING and with "**D**" for RELEASE.

Drawing hereafter shows gripper gripping at the end of stroke (inlet through "**S**")

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	46 lbs.	205 N	9 lbs.	41 N
Maximum Compressive **C**	51 lbs.	225 N	10 lbs.	45 N
Maximum Moment M_x	27 in.-lbs.	3 Nm	7 in.-lbs.	0.75 Nm
Maximum Moment M_y	53 in.-lbs.	6 Nm	13 in.-lbs.	1.5 Nm
Maximum Moment M_z	80 in.-lbs.	9 Nm	20 in.-lbs.	2.25 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL

GC - 45 - V

SIZE | VITON® SEALS

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
4mm PNP Inductive Sensor with Qk Disconnect*	**OISP-014**	**1 or 2**
4mm NPN Inductive Sensor with Qk Disconnect*	**OISN-014**	**1 or 2**
Quick Disconnect 2 Meter Cable*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable*	**CABL-013**	**1 or 2**
PNEUMATIC ACCESSORIES		
Standard Seal Repair Kit	**SLKT-321**	**1**
Viton® Seal Repair Kit	**SLKT-321V**	**1**

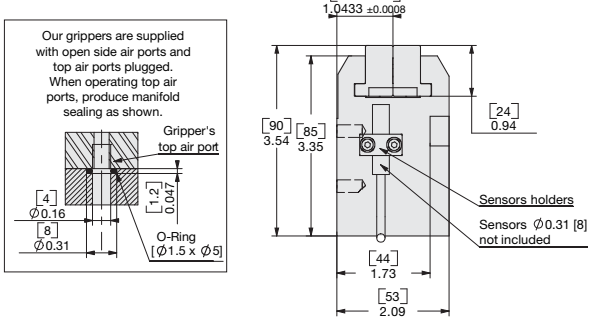
*Sensor and cable sold separately.

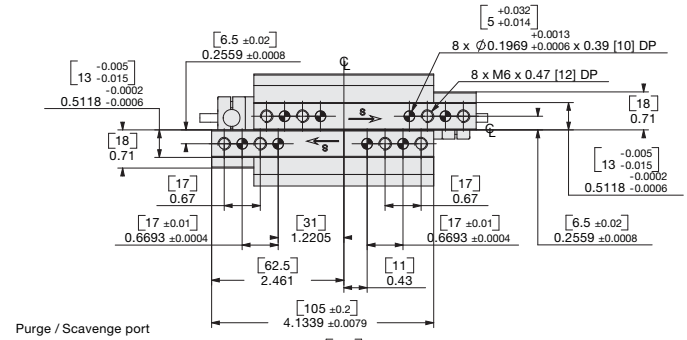
PARALLEL GRIPPER GC-65
TWO JAW PRECISION SPRING ASSIST

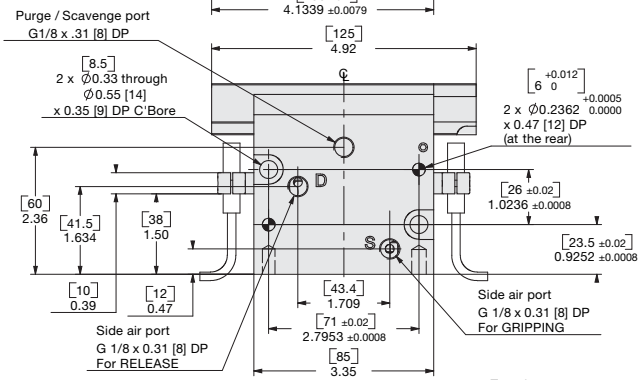
Robohand

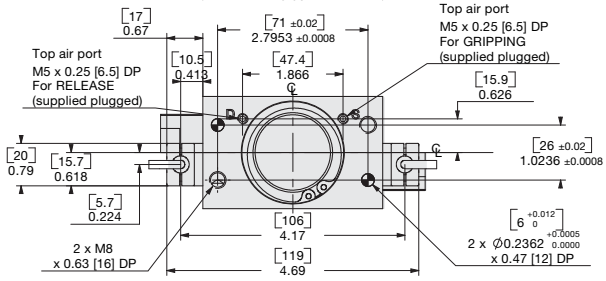
Specifications	GC-65	
Total Rated Grip Force **F** @ 100 psi, 7 bar *	179 lbs.	796 N
Stroke	1.575 in	40 mm
Weight	2.87 lbs.	1.30 kg
Pressure Range	45-100 psi	3-7 bar
Cylinder Bore Ø	1.85 in.	47 mm
Displacement	3.78 in³.	62 cm³
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.35 sec.	0.35 sec.
Accuracy	±0.0009 in.	±0.02 mm
Repeatability	±0.0004 in.	±0.01 mm.
Valve required to actuate single acting	3-way 2-position	
Valve required to actuate double acting	4-way, 2-position	

* With springs.









UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

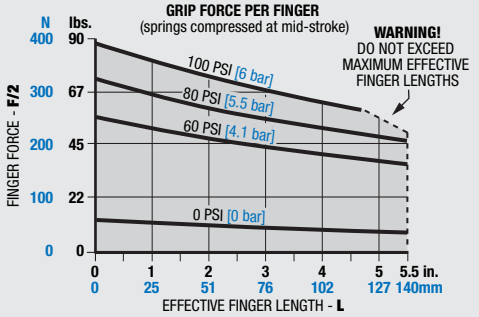
Metric Threads Course Pitch

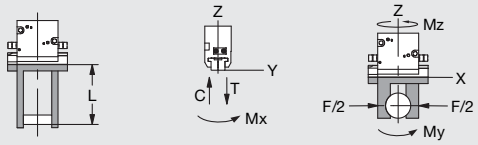
Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

NOTE:
To benefit from safety springs power, on open or on close, gripper must always be operated with "**S**" for GRIPPING and with "**D**" for RELEASE.

Drawing hereafter shows gripper gripping at the end of stroke (inlet through "**S**")

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	61 lbs.	270 N	12 lbs.	54 N
Maximum Compressive **C**	69 lbs.	305 N	14 lbs.	61 N
Maximum Moment M_x	35 in.-lbs.	4 Nm	9 in.-lbs.	1 Nm
Maximum Moment M_y	89 in.-lbs.	10 Nm	22 in.-lbs.	2.5 Nm
Maximum Moment M_z	150 in.-lbs.	17 Nm	38 in.-lbs.	4.25 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL

GC - 65 - V

SIZE — VITON® SEALS

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
8mm PNP Inductive Sensor with Qk Disconnect*	**OISP-011**	**1 or 2**
8mm NPN Inductive Sensor with Qk Disconnect*	**OISN-011**	**1 or 2**
Quick Disconnect 2 Meter Cable*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable*	**CABL-013**	**1 or 2**
PNEUMATIC ACCESSORIES		
Standard Seal Repair Kit	**SLKT-323**	**1**
Viton® Seal Repair Kit	**SLKT-323V**	**1**

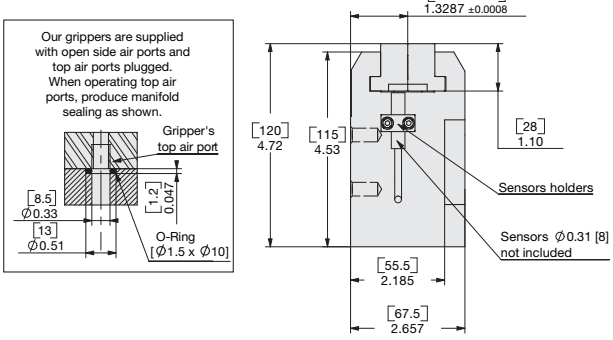
*Sensor and cable sold separately.

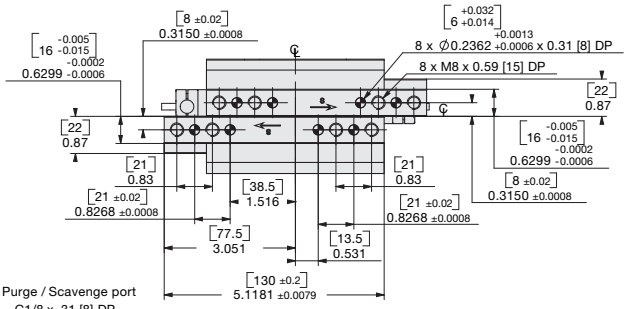
PARALLEL GRIPPER GC-85
TWO JAW PRECISION SPRING ASSIST

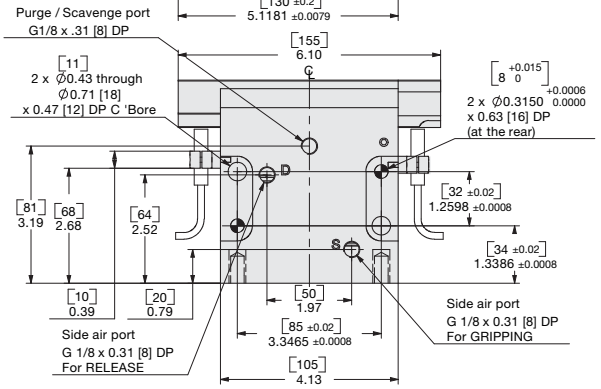
Specifications

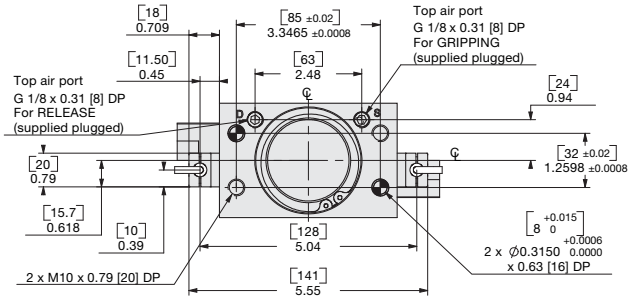
	GC-85	
Total Rated Grip Force **F** @ 100 psi, 7 bar *	333 lbs.	1480 N
Stroke	1.968 in	50 mm
Weight	4.85 lbs.	2.20 kg
Pressure Range	45-100 psi	3-7 bar
Cylinder Bore Ø	2.36 in.	60 mm
Displacement	8.30 in³.	136 cm³
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.5 sec.	0.5 sec.
Accuracy	±0.0009 in.	±0.02 mm
Repeatability	±0.0004 in.	±0.01 mm.
Valve required to actuate single acting	3-way 2-position	
Valve required to actuate double acting	4-way, 2-position	

* With springs.









UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

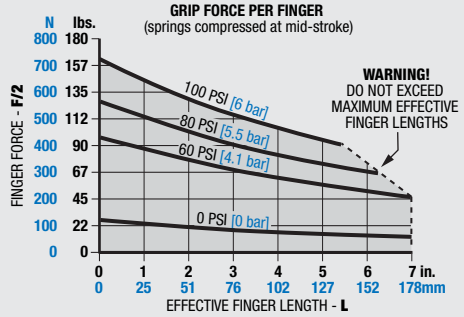
Metric Threads Course Pitch

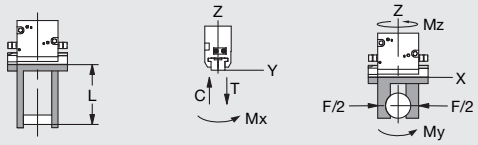
Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

NOTE:
To benefit from safety springs power, on open or on close, gripper must always be operated with "**S**" for GRIPPING and with "**D**" for RELEASE.

Drawing hereafter shows gripper gripping at the end of stroke (inlet through "**S**")

Loading Information





Loading Capacity†

	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	83 lbs.	370 N	17 lbs.	74 N
Maximum Compressive **C**	91 lbs.	405 N	18 lbs.	81 N
Maximum Moment M_x	53 in.-lbs.	6 Nm	13 in.-lbs.	1.5 Nm
Maximum Moment M_y	133 in.-lbs.	15 Nm	33 in.-lbs.	3.75 Nm
Maximum Moment M_z	239 in.-lbs.	27 Nm	60 in.-lbs.	6.75 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL

GC - 85 - V

SIZE — VITON® SEALS

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
8mm PNP Inductive Sensor with Qk Disconnect*	**OISP-011**	**1 or 2**
8mm NPN Inductive Sensor with Qk Disconnect*	**OISN-011**	**1 or 2**
Quick Disconnect 2 Meter Cable*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable*	**CABL-013**	**1 or 2**
PNEUMATIC ACCESSORIES		
Standard Seal Repair Kit	**SLKT-325**	**1**
Viton® Seal Repair Kit	**SLKT-325V**	**1**

*Sensor and cable sold separately.

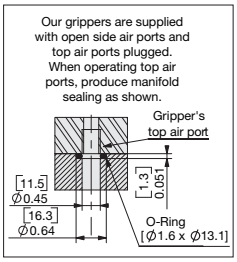
PARALLEL GRIPPER GC-105
TWO JAW PRECISION SPRING ASSIST

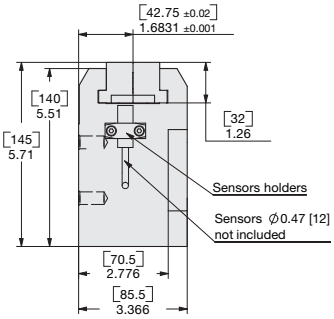
Robohand

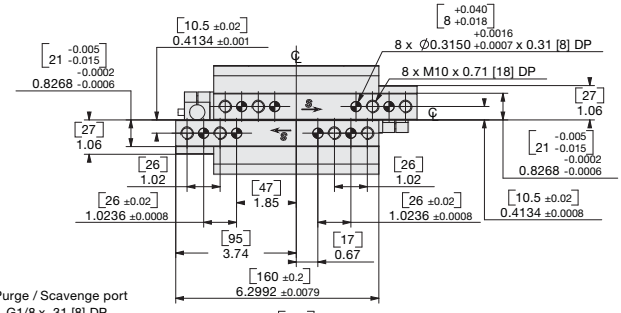
Specifications

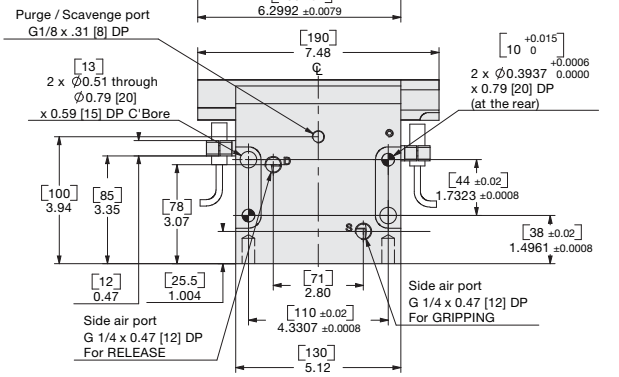
	GC-105	
Total Rated Grip Force **F** @ 100 psi, 7 bar *	521 lbs.	2318 N
Stroke	2.362 in	60 mm
Weight	9.50 lbs.	4.31 kg
Pressure Range	45-100 psi	3-7 bar
Cylinder Bore Ø	2.99 in.	76 mm
Displacement	15.93 in³.	261 cm³
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.7 sec.	0.7 sec.
Accuracy	±0.0009 in.	±0.02 mm
Repeatability	±0.0004 in.	±0.01 mm.
Valve required to actuate single acting	3-way 2-position	
Valve required to actuate double acting	4-way, 2-position	

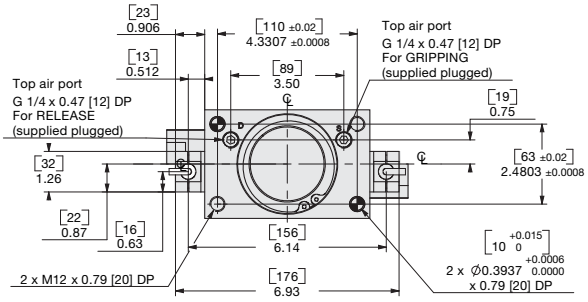
* With springs.











UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

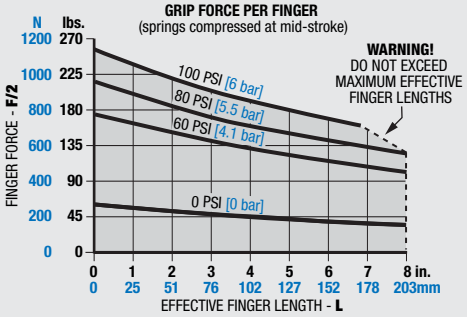
Metric Threads Course Pitch

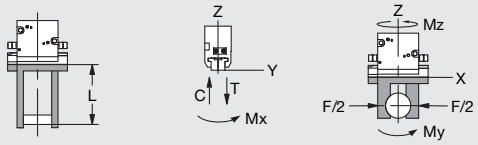
Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

NOTE:
To benefit from safety springs power, on open or on close, gripper must always be operated with "**S**" for GRIPPING and with "**D**" for RELEASE.

Drawing hereafter shows gripper gripping at the end of stroke (inlet through "**S**")

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	93 lbs.	415 N	19 lbs.	83 N
Maximum Compressive **C**	102 lbs.	455 N	20 lbs.	91 N
Maximum Moment M_x	71 in.-lbs.	8 Nm	18 in.-lbs.	2 Nm
Maximum Moment M_y	168 in.-lbs.	19 Nm	42 in.-lbs.	4.75 Nm
Maximum Moment M_z	354 in.-lbs.	40 Nm	89 in.-lbs.	10 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL

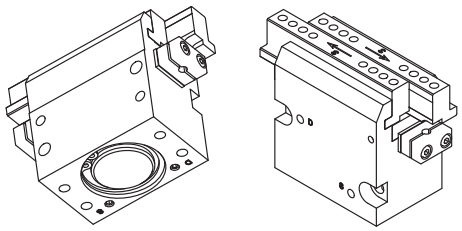
GC - 105 - V

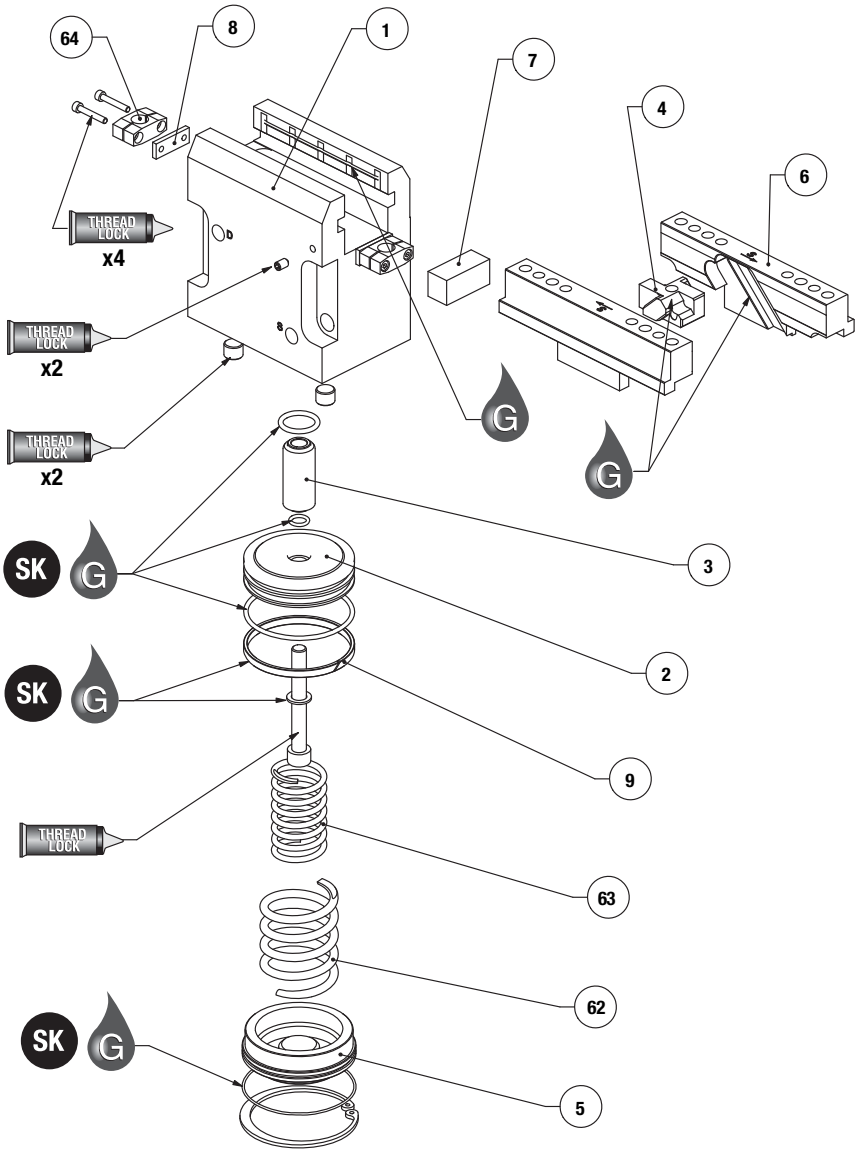
SIZE — VITON® SEALS

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
12mm PNP Inductive Sensor with Qk Disconnect*	**OISP-017**	**1 or 2**
12mm NPN Inductive Sensor with Qk Disconnect*	**OISN-017**	**1 or 2**
Quick Disconnect 2 Meter Cable*	**CABL-014**	**1 or 2**
Quick Disconnect 5 Meter Cable*	**CABL-018**	**1 or 2**
PNEUMATIC ACCESSORIES		
Standard Seal Repair Kit	**SLKT-327**	**1**
Viton® Seal Repair Kit	**SLKT-327V**	**1**

*Sensor and cable sold separately.

GC Series Exploded View





Item	Qty	Name
01	1	Body
02	1	Piston
03	1	Piston Shaft
04	1	Double Wedge
05	1	Cap
06	2	Jaw Holder
07	1	Cover
08	2	Spacer
09	1	Piston Guidance Tape
62	1	Outer Spring
63	1	Inner Spring

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

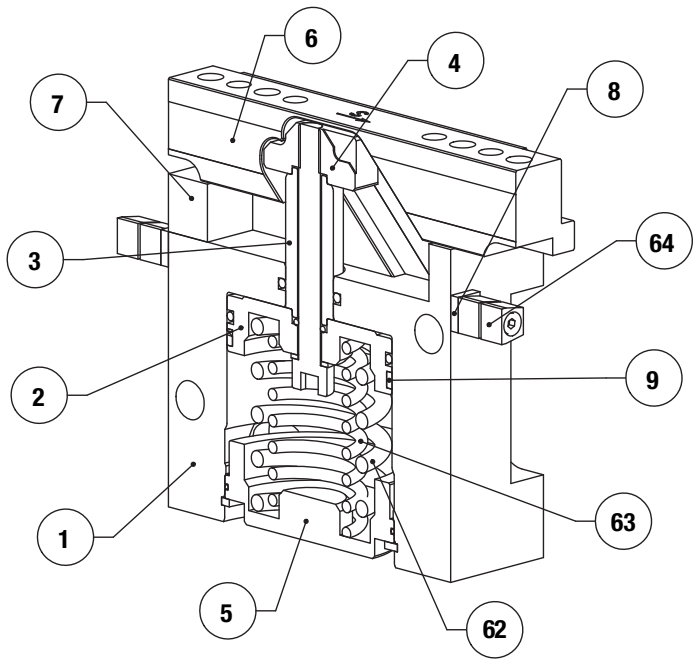
Assembly Procedure

1) Lubricate and install the seals into cap (x1) and body (x1)
2) If rear inlets are used, clear them and plug the side inlets on the body (#1)
3) Lubricate the slot of jaws (#6), the double wedge (#4), and the slot of the body (#1).
4) Place the double wedge between the two jaws and then introduce the jaws in the slots of the body.
5) Assemble the piston:
   GC-25 & GC-65 (not shown): lubricate and install the seal onto the one piece piston (#3) Insert the piston into the body, locate it on the double wedge, place the seal ring under the screw cap and screw all the pieces together..
   GC-85 (not shown): Insert the shaft (#3) into the body and center it in the double wedge. Lubricate and insert the seals on the piston (#2). Insert the piston into the body while centering on the shaft. Place the seal ring under the screw cap and screw all the pieces together.
   GC-105: Insert the shaft (#3) into the body and center it in the double wedge. Lubricate and insert the seals and the guidance ring (#9) on the piston (#2). Insert the piston into the body while centering on the shaft. Place the seal ring under the screw cap and screw all the pieces together.
6) Make by hand the piston move into the body
7) Insert the two springs (#62 & 63) into the counterbore of the piston
8) Install the cap (#5) and fix it with the retaining ring.
9) Place and fix the wiper (#7) in the body.
10) Mount the sensor holder (#64) and the spacer (#8) on the body sides

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

GC Series Assembled View



Item	Qty	Name
01	1	Body
02	1	Piston
03	1	Piston Shaft
04	1	Double Wedge
05	1	Cap
06	2	Jaw Holder
07	1	Cover
08	2	Spacer
09	1	Piston Guidance Tape
62	1	Outer Spring
63	1	Inner Spring

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection

DESIGN NOTES

QUALITY PRECISION DURABILITY

Parallel Grippers - DPW DIRECTCONNECT™ Wide Body Series

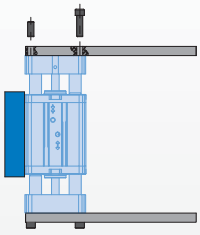
NO ADAPTER PLATES!

DIRECTCONNECT™

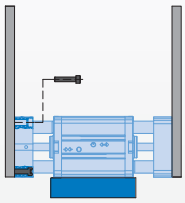
- **DIRECTCONNECT™ Connectivity:** DIRECTCONNECT™ Tapped and Dowel mounting on body.
- **Large or Wide Parts:** Wide body design provides secure gripping of large & wide parts.
- **Multiple air port positions:** Tapped air ports on top and front are standard.
- **Manifold Air Porting:** Top air ports can be manifold o-ring sealed.
- **Inductive Sensor Flexibility:** Mount either 3mm or 4mm Inductive sensors with the same bracket (3mm only on DPW-250).
- **Magnetoresistive Sensing:** Full range adjustable Magnetoresistive Sensors. Magnet supplied standard.
- **Long Finger Applications:** Jaw support thru the length of the body allows for long fingers to be attached to jaws.
- **Thru Jaw Mounting:** Offers a wider variety of mounting applications for jaws.
- **Shaft Wiper Option:** Rugged urethane shaft wipers seal the unit against harsh environments. Designed to be used in machine coolant and metal chip environment applications.
- **Multiple Strokes:** All gripper sizes are available in 2 different strokes.
- **Non-synchronous motion:** The unit can be made non-synchronous providing independent jaw motion allowing the gripper to pick or place at a point other than its center.

Mounting Information:

Grippers can be mounted & operated in any direction

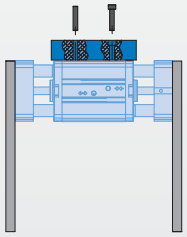


Fingers attach with screws and locate on jaws with dowel pins

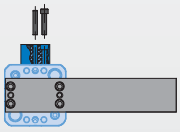


Thru mounting on inside of jaws to allow for alternate finger mounting

Jaw design allows for simplified mounting of fingers



Body mounts on top with screws and locates with slip fit dowel pin holes for accuracy



Symmetrical mounting pattern on jaws allows for multiple finger orientation

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	
Air Quality Requirements		
Air Filtration	**40 Micron or Better**	
Air Lubrication	**Not Necessary***	
Air Humidity	**Low Moisture Content (dry)**	
Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~300° F**	**-30°~150° C**
Maintenance Specifications		
Expected Life		
Normal Application	**5 million cycles**	
w/ Preventative Maintenance	**10+ million cycles***	
Field Repairable	**Yes**	
Seal Repair Kits Available	**Yes**	
-W Option Shaft Wiper Specifications		
Wiper Material	**90 Durometer Urethane**	
Temperature Rating (Wiper Only)	**-65°~275° F**	**-54°~135° C**
Compatible Chemicals	**water, coolant, petroleum oils, silicone, lubricants, dilute acids & alkalis, hydraulic fluid, transmission fluid**	
Non-Compatible Chemicals	**Ozone, ketones, strong acids, brake fluid**	
Example Applications	**Grinding dust, machine chips & coolant, paper dust, washdown**	

Application Restrictions

Applications where mechanism lubricant could cause contamination (use -W Shaft Wiper Option in this case)

*Addition of lubrication will greatly increase service life

Product Features

Thru-Jaw Mounting
C'bores on inside of jaws for thru mounting to increase range of applications

DIRECTCONNECT Mounting Patterns
DIRECTCONNECT™ Tapped & Dowel mounting surface on top of body

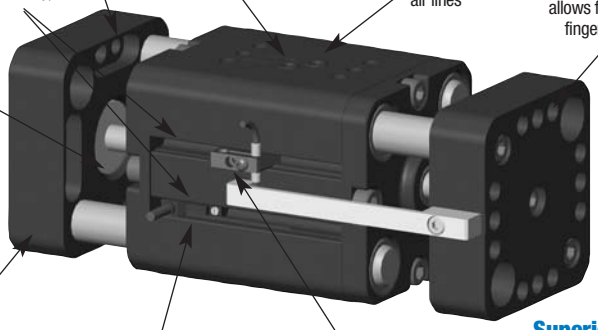
Sealed Design (-W option)
Urethane shaft wipers prevent against dirty environments (machining chips & coolant, grinding dust, paper mill environments, etc.)

Sensor Mounting Slots
Standard mounting slots for magneto resistive and inductive sensors (sensors sold separately)

Multiple Air Port Locations
2 standard airport location (front & top)

Manifold Air Ports
Top air ports can be O-Ring manifold sealed to eliminate air lines

Simplified Finger Mounting
Large jaw configuration allows for simplified finger mounting



End of Stroke Cushions
Reduce shock of fully open and close strokes

Dowel Holes
Slip fit dowel pin holes in body and jaws

Square-Faced Jaws
Allow for a symmetrical, multi-positional mounting pattern for simplified finger design and increased range of applications

Magneto Resistive Sensors
An alternative option to inductive sensors (magnets supplied standard)

Combined 3mm and 4mm Inductive Sensor Mounting
Allows for either 3 or 4mm Inductive sensors (3mm only on DPW-250)

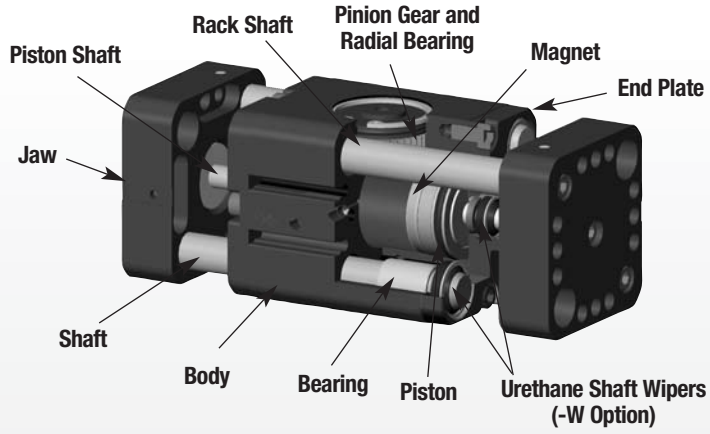
Superior Jaw Support
Each jaw is supported by 2 shafts that extend the entire length of the body and are guided by 2 oil impregnated bronze bushings per shaft

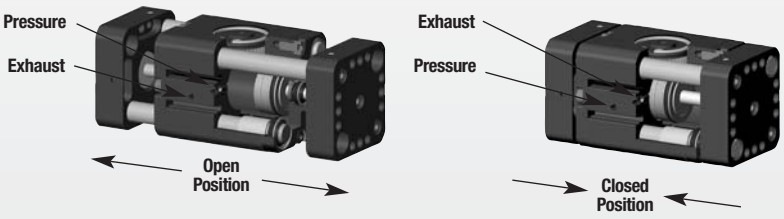
Quality Components
Hardened precision stainless steel shafting for wear resistance and long life

High Temperature
Optional Viton® seals are available for high temperature applications

Optional Non-Synchronous Operation

Operating Principle





- Two shafts, one with a rack cut into it, are securely fastened to each of the jaws and are supported through the length of the body.
- Two double acting opposed pistons provide power to the jaws.
- The rack shafts of each jaw slide in opposite directions of one another and are synchronized by a piston gear.
- This gripper is suitable for internal or external gripping and can be mounted in any orientation.

U.S Patent #5,163,729 Designed, manufactured and assembled in the USA

Style -DPW Parallel Gripper

Size -250M-1

	250M-1	
Stroke:	0.75 in.	19.1 mm
Grip Force:	50 lbs.	222 N
Weight:	0.662 lbs.	0.30 Kg

Shown with -W Shaft Wiper Option

See Page 1.178

Style -DPW Parallel Gripper

Size -250M-2

Style:	250M-2	
Stroke:	1.25 in.	31.8 mm
Grip Force:	50 lbs.	222 N
Weight:	0.856 lbs.	0.39 Kg

Shown with -W Shaft Wiper Option

See Page 1.180

Style -DPW Parallel Gripper

Size -375M-1

Style:	375M-1	
Stroke:	1.00 in.	25.4 mm
Grip Force:	100 lbs.	445 N
Weight:	1.80 lbs.	0.81 Kg

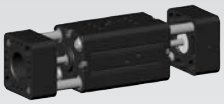
Shown with -W Shaft Wiper Option

See Page 1.182

Style -DPW Parallel Gripper

Size -375M-2

Style:	375M-2	
Stroke:	2.00 in.	50.8 mm
Grip Force:	100 lbs.	445 N
Weight:	2.66 lbs.	1.20 Kg



Shown with -W Shaft Wiper Option

See Page 1.184

Style -DPW Parallel Gripper

Size -500M-1

Style:	500M-1	
Stroke:	1.50 in.	38.1 mm
Grip Force:	180 lbs.	800 N
Weight:	3.27 lbs.	1.48 Kg

Shown with -W Shaft Wiper Option

See Page 1.186

Style -DPW Parallel Gripper

Size -500M-2

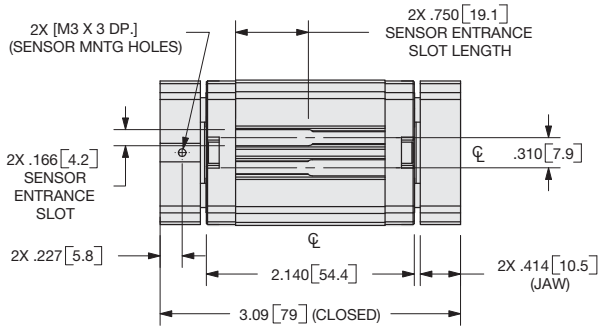
Style:	500M-2	
Stroke:	2.50 in.	63.5 mm
Grip Force:	180 lbs.	800 N
Weight:	4.39 lbs.	2.0 Kg

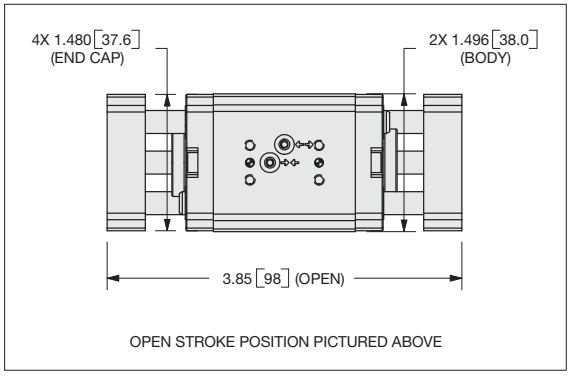
Shown with -W Shaft Wiper Option

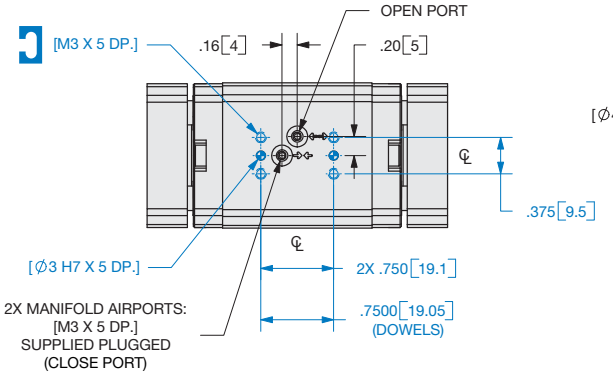
See Page 1.188

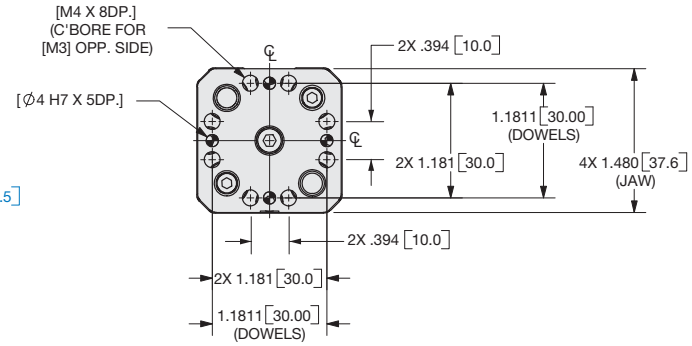
PARALLEL GRIPPERS DPW-250M-1
DIRECTCONNECT WIDE BODY SERIES

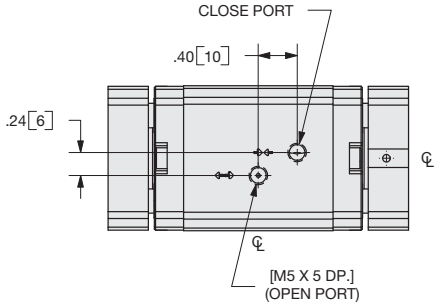
Robohand











UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	**Metric [mm]** [0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | STROKE | WIPERS | VITON SEALS

DPW-250M - 1 - NS - W - V

NON-SYNCHRONOUS

JAW SYNCHRONIZATION **NS** Non-Synchronous Operation
__ Leave Blank for Synchronous (standard)
WIPERS **W** Shaft Wipers
VITON® SEALS **V**

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor Short Barrel (with Qk. Disc.)*	OHSP-017	1 or 2
NPN Magneto Resistive Sensor Short Barrel (with Qk. Disc.)*	OHSN-017	1 or 2
PNP Magneto Resistive Sensor 90° Barrel (with Qk. Disc.)*	OHSP-011	1 or 2
NPN Magneto Resistive Sensor 90° Barrel (with Qk. Disc.)*	OHSN-011	1 or 2
Quick Disconnect Cable (2 meters long)*	CABL-010	1 or 2
Quick Disconnect Cable (5 meters long)*	CABL-013	1 or 2
PNP Inductive Sensor 3mm (with Qk. Disc.)*	OISP-019	1 or 2
NPN Inductive Sensor 3mm (with Qk. Disc.)*	OISN-019	1 or 2
Sensor Mounting Kit for 3mm Inductive Sensor	OSMK-116	1

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit (Standard Buna-N)	SLKT-337	1
Seal Repair Kit (Viton®)	SLKT-337V	1
Manifold Seal Kit (Viton®)	SLKT-197V	1
Shaft Wiper Seal Kit	SLKT-338	1
Fail Safe Valve M5	OFSV-004	1
Adjustable Flow Control	VLVF-008	1 or 2

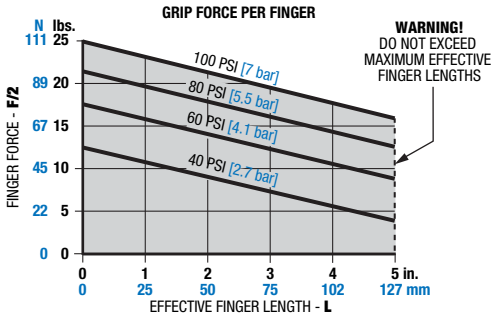
*Sensor and cable sold separately

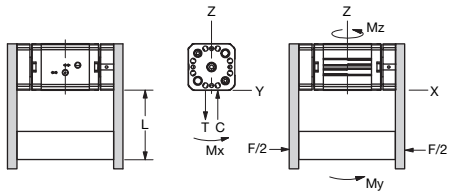
SAMPLE ORDER: DPW-250M-1-W-V
Ex: DPW-250M Gripper, 19.1mm Stroke, Shaft Wipers, Viton Seals

DIRECTCONNECT™

PARALLEL GRIPPERS DPW-250M-1
DIRECT CONNECT WIDE BODY SERIES

Specifications	DPW-250M-1	
Total Rated Grip Force **F** @ 100 psi, 7 bar	50 lbs.	222 N
Stroke	0.75 in.	19.1 mm
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	0.625 in.	15.9 mm
Displacement	0.023 in^3.	3.8 cm^3
Weight	0.662 lbs.	0.30 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.12 sec.	0.12 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	

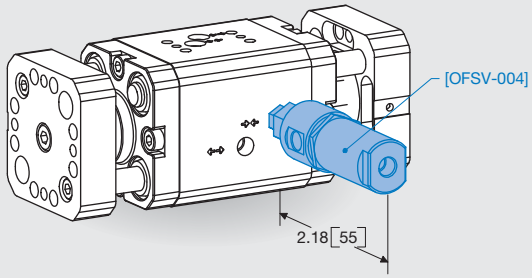




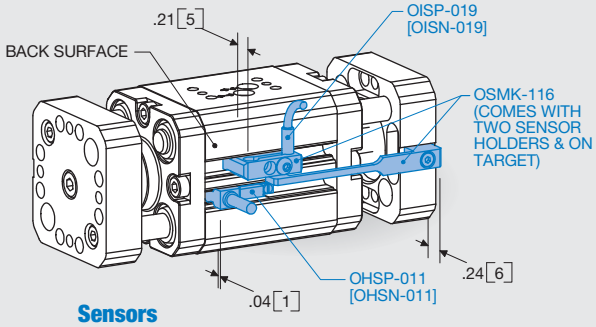
Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	60 lbs. [267 N]	12 lbs. [53 N]
Maximum Compressive **C**	60 lbs. [267 N]	12 lbs. [53 N]
Maximum Moment $\mathbf{M_X}$	120 in.-lbs. [14 Nm]	24 in.-lbs. [3 Nm]
Maximum Moment $\mathbf{M_Y}$	180 in.-lbs. [20 Nm]	36 in.-lbs. [4 Nm]
Maximum Moment $\mathbf{M_Z}$	120 in.-lbs. [14 Nm]	24 in.-lbs. [3 Nm]

†Capacities are per set of jaws and are not simultaneous

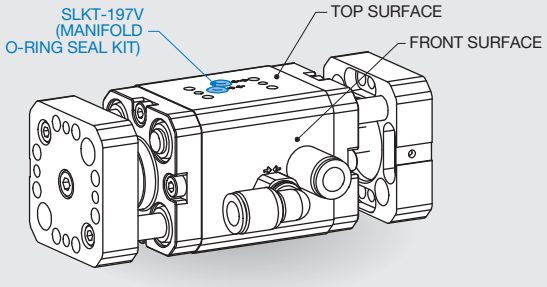
Accessory Mounting Technical Data



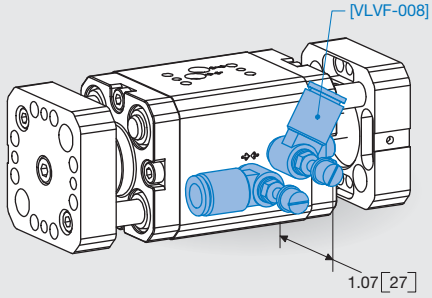
Failsafe Valves
- Used in applications where it is critical that the part being gripped not be dropped if air pressure is lost
- Mounts directly to gripper
- M5 air port



Sensors
- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting Kits required
- Low profile underflush sensor version or 90° wire exit sensor version
- Simple adjustment with slotted screw driver
- PNP and NPN inductive available
- Inductive sensor bracket mounts 3mm sensor
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



Multiple Air Port Locations
- 2 standard air port locations (top and front surface)
- Top manifold air ports are supplied plugged
- Seals in manifold kit are Viton®
- Front air ports are tapped for M5 fittings

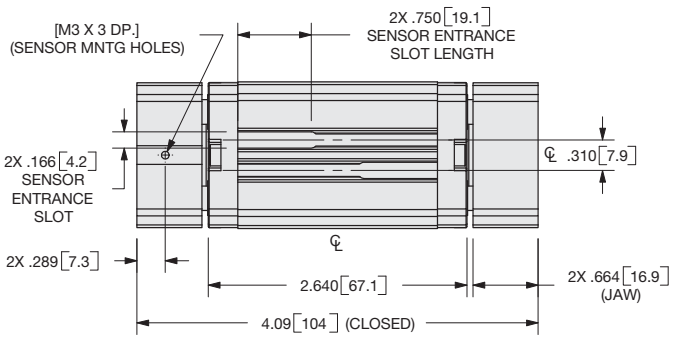


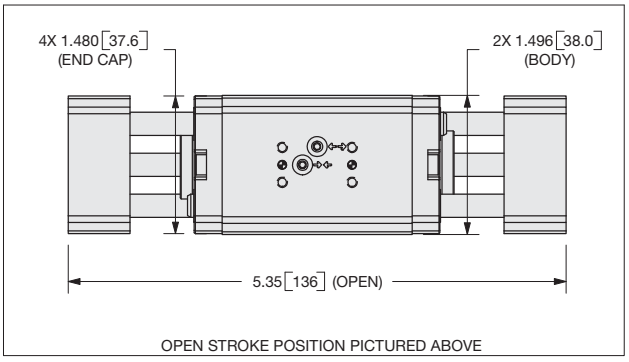
Flow Controls
- Thumb screw adjust with locking nut for adjusting actuation time
- Available for 6mm OD tubing

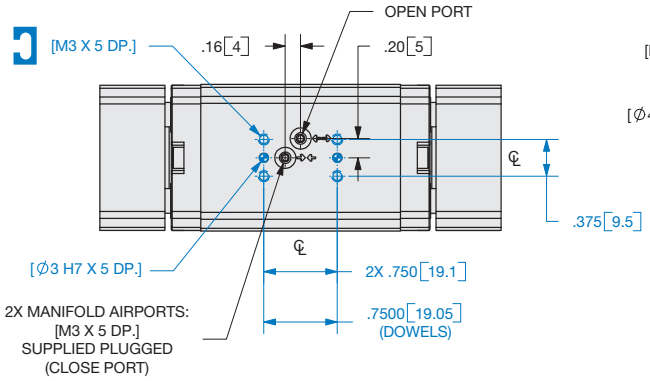
DIRECT CONNECT™

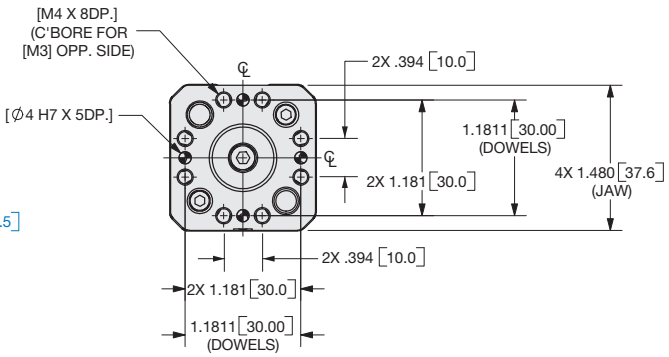
PARALLEL GRIPPERS DPW-250M-2
DIRECTCONNECT WIDE BODY SERIES

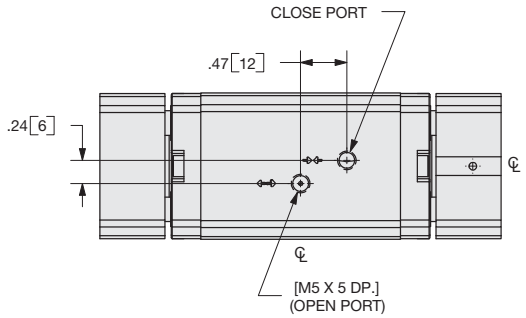
Robohand











NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	**Metric [mm]** [0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | STROKE | WIPERS | VITON SEALS

DPW-250M - 2 - NS - W - V

NON-SYNCHRONOUS

JAW SYNCHRONIZATION	**NS**	Non-Synchronous Operation
	__	Leave Blank for Synchronous (standard)
WIPERS	**W**	Shaft Wipers
VITON® SEALS	**V**	

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor Short Barrel (with Qk. Disc.)*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor Short Barrel (with Qk. Disc.)*	**OHSN-017**	**1 or 2**
PNP Magneto Resistive Sensor 90º Barrel (with Qk. Disc.)*	**OHSP-011**	**1 or 2**
NPN Magneto Resistive Sensor 90º Barrel (with Qk. Disc.)*	**OHSN-011**	**1 or 2**
Quick Disconnect Cable (2 meters long)*	**CABL-010**	**1 or 2**
Quick Disconnect Cable (5 meters long)*	**CABL-013**	**1 or 2**
PNP Inductive Sensor 3mm (with Qk. Disc.)*	**OISP-019**	**1 or 2**
NPN Inductive Sensor 3mm (with Qk. Disc.)*	**OISN-019**	**1 or 2**
Sensor Mounting Kit for 3mm Inductive Sensor	**OSMK-116**	**1**

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit (Standard Buna-N)	**SLKT-337**	**1**
Seal Repair Kit (Viton®)	**SLKT-337V**	**1**
Manifold Seal Kit (Viton®)	**SLKT-197V**	**1**
Shaft Wiper Seal Kit	**SLKT-338**	**1**
Fail Safe Valve M5	**OFSV-004**	**1**
Adjustable Flow Control	**VLVF-008**	**1 or 2**

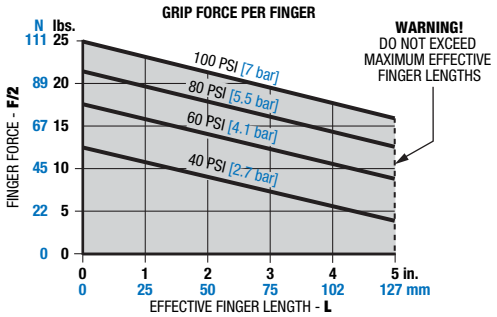
*Sensor and cable sold separately

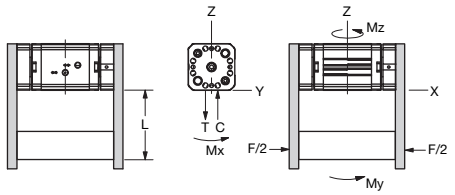
SAMPLE ORDER: DPW-250M-2-W-V

Ex: DPW-250M Gripper, 31.8mm Stroke, Shaft Wipers, Viton Seals

DIRECTCONNECT™

Specifications	DPW-250M-2	
Total Rated Grip Force **F** @ 100 psi, 7 bar	50 lbs.	222 N
Stroke	1.25 in.	31.8 mm
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	0.625 in.	15.9 mm
Displacement	0.383 in³.	6.3 cm³
Weight	0.856 lbs.	0.39 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.14 sec.	0.14 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	

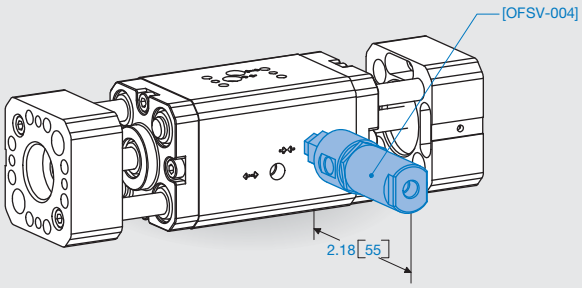




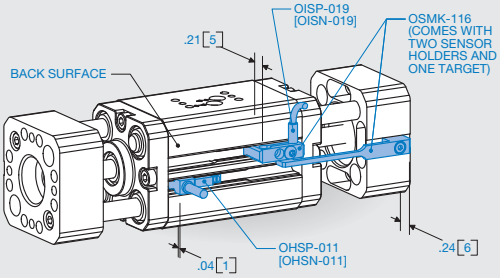
Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	60 lbs. [267 N]	12 lbs. [53 N]
Maximum Compressive **C**	60 lbs. [267 N]	12 lbs. [53 N]
Maximum Moment M_X	120 in.-lbs. [14 Nm]	24 in.-lbs. [3 Nm]
Maximum Moment M_Y	180 in.-lbs. [20 Nm]	36 in.-lbs. [4 Nm]
Maximum Moment M_Z	120 in.-lbs. [14 Nm]	24 in.-lbs. [3 Nm]

†Capacities are per set of jaws and are not simultaneous

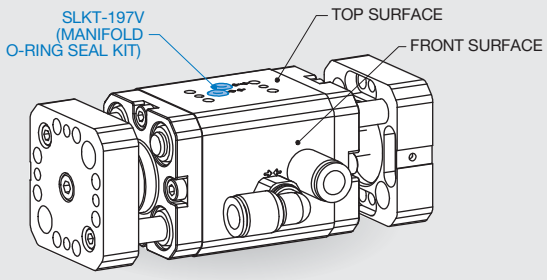
Accessory Mounting Technical Data



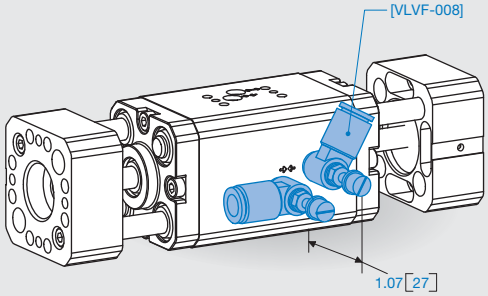
Failsafe Valves
- Used in applications where it is critical that the part being gripped not be dropped if air pressure is lost
- Mounts directly to gripper
- M5 air port



Sensors
- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting Kits required
- Low profile underflush sensor version or 90° wire exit sensor version
- Simple adjustment with slotted screw driver
- PNP and NPN inductive available
- Inductive sensor bracket mounts 3mm sensor
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



Multiple Air Port Locations
- 2 standard air port locations (top and front surface)
- Top manifold air ports are supplied plugged
- Seals in manifold kit are Viton®
- Front air ports are tapped for M5 fittings



Flow Controls
- Thumb screw adjust with locking nut for adjusting actuation time
- Available for 6mm OD tubing

DIRECT CONNECT™

PARALLEL GRIPPERS DPW-375M-1
DIRECTCONNECT WIDE BODY SERIES

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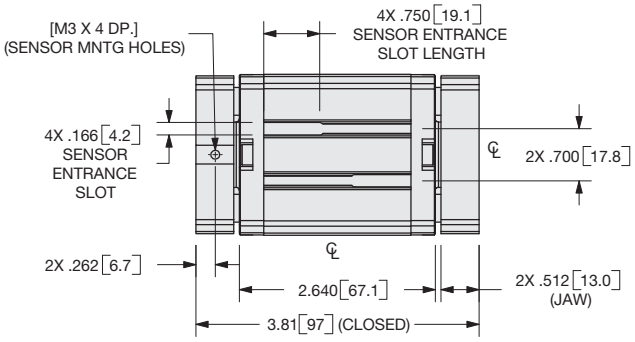

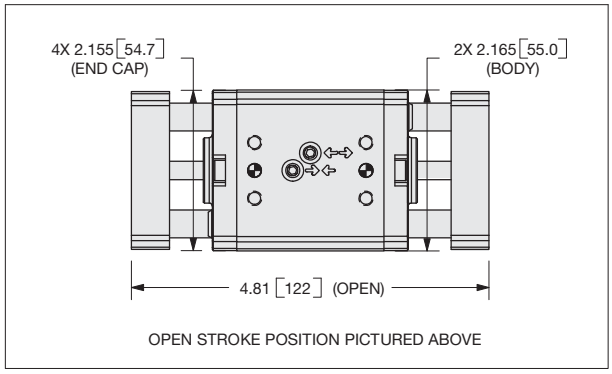

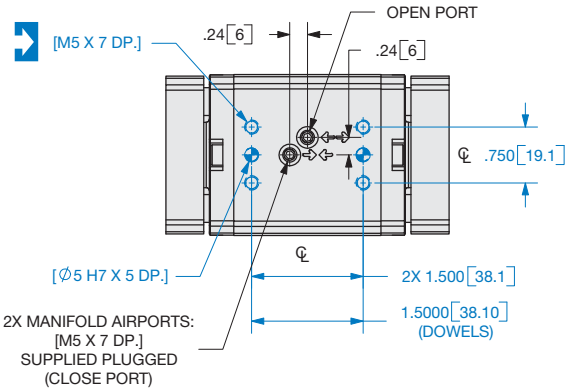

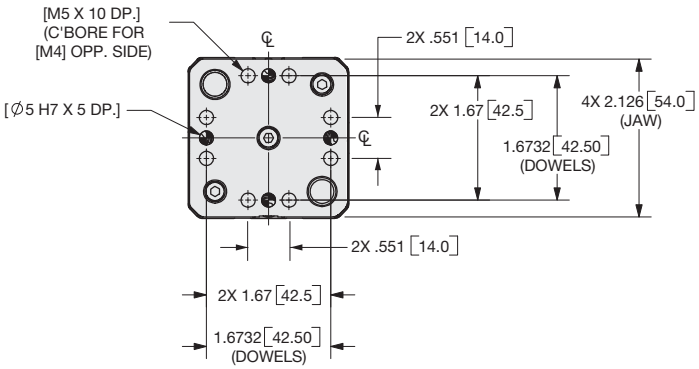

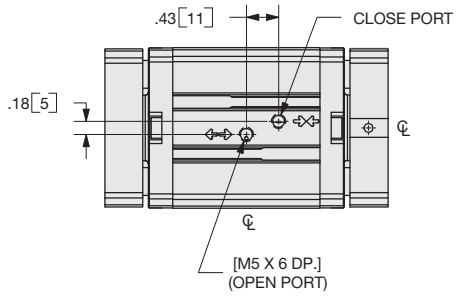

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Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	**Metric [mm]** [0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | STROKE | WIPERS | VITON SEALS

DPW-375M - 1 - NS - W - V

NON-SYNCHRONOUS

JAW SYNCHRONIZATION	**NS**	Non-Synchronous Operation
	__	Leave Blank for Synchronous (standard)
WIPERS	**W**	Shaft Wipers
VITON® SEALS	**V**	

SAMPLE ORDER: DPW-375M-1-W-V

Ex: DPW-375M Gripper, 25.4mm Stroke, Shaft Wipers, Viton Seals

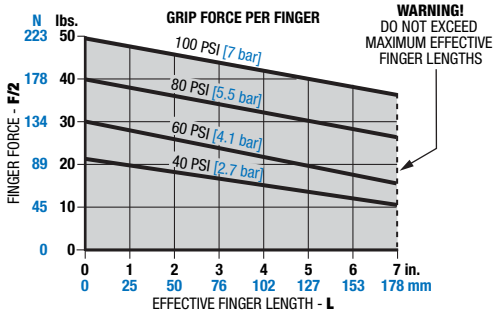
SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor Short Barrel (with Qk. Disc.)*	OHSP-017	1,2,3 or 4
NPN Magneto Resistive Sensor Short Barrel (with Qk. Disc.)*	OHSN-017	1,2,3 or 4
PNP Magneto Resistive Sensor 90° Barrel (with Qk. Disc.)*	OHSP-011	1,2,3 or 4
NPN Magneto Resistive Sensor 90° Barrel (with Qk. Disc.)*	OHSN-011	1,2,3 or 4
Quick Disconnect Cable (2 meters long)*	CABL-010	1,2,3 or 4
Quick Disconnect Cable (5 meters long)*	CABL-013	1,2,3 or 4
PNP Inductive Sensor 3mm (with Qk. Disc.)*	OISP-019	1 or 2
NPN Inductive Sensor 3mm (with Qk. Disc.)*	OISN-019	1 or 2
PNP Inductive Sensor 4mm (with Qk. Disc.)*	OISP-014	1 or 2
NPN Inductive Sensor 4mm (with Qk. Disc.)*	OISN-014	1 or 2
Sensor Mounting Kit for 3mm or 4mm Inductive Sensor	OSMK-117	1

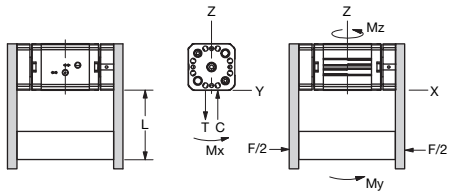
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit (Standard Buna-N)	SLKT-339	1
Seal Repair Kit (Viton®)	SLKT-339V	1
Manifold Seal Kit (Viton®)	SLKT-199V	1
Shaft Wiper Seal Kit	SLKT-340	1
Fail Safe Valve M5	OFSV-004	1
Adjustable Flow Control	VLVF-008	1 or 2

*Sensor and cable sold separately

DIRECTCONNECT™

Specifications	DPW-375M-1	
Total Rated Grip Force **F** @ 100 psi, 7 bar	100 lbs.	445 N
Stroke	1.00 in.	25.4 mm
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	0.938 in.	23.8 mm
Displacement	0.690 in³.	11.3 cm³
Weight	1.80 lbs.	0.81 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.16 sec.	0.16 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	

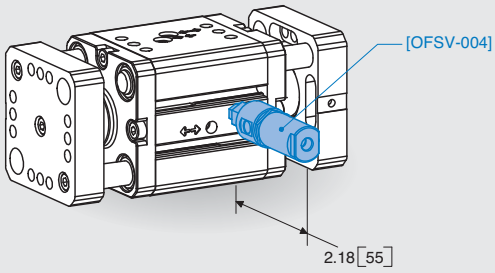




Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	120 lbs. [534 N]	24 lbs. [107 N]
Maximum Compressive **C**	120 lbs. [534 N]	24 lbs. [107 N]
Maximum Moment M_X	210 in.-lbs. [24 Nm]	42 in.-lbs. [5 Nm]
Maximum Moment M_Y	300 in.-lbs. [34 Nm]	60 in.-lbs. [7 Nm]
Maximum Moment M_Z	210 in.-lbs. [24 Nm]	42 in.-lbs. [5 Nm]

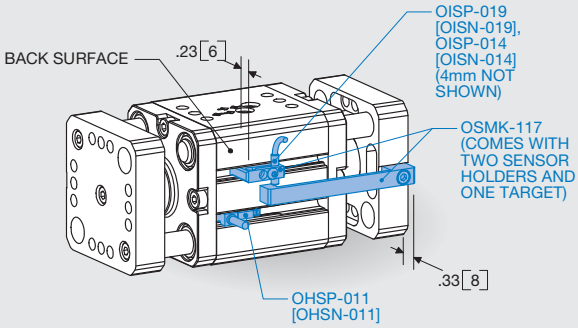
†Capacities are per set of jaws and are not simultaneous

Accessory Mounting Technical Data



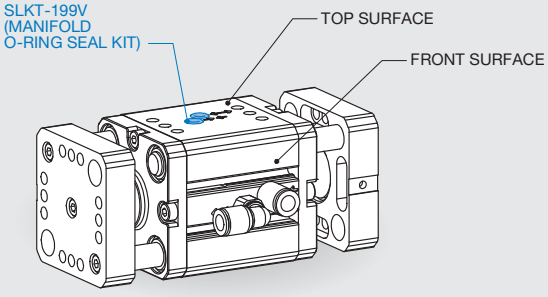
Failsafe Valves

- Used in applications where it is critical that the part being gripped not be dropped if air pressure is lost
- Mounts directly to gripper
- M5 air port



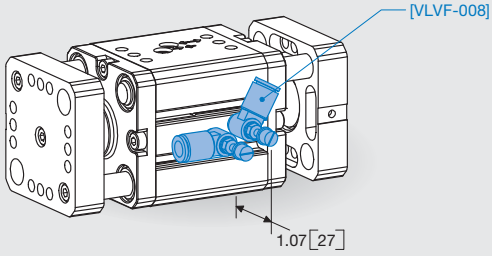
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting Kits required
- Low profile underflush sensor version or 90° wire exit sensor version
- Simple adjustment with slotted screw driver
- PNP and NPN inductive available
- Inductive sensor bracket mounts 3mm sensor
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



Multiple Air Port Locations

- 2 standard air port locations (top and front surface)
- Top manifold air ports are supplied plugged
- Seals in manifold kit are Viton®
- Front air ports are tapped for M5 fittings



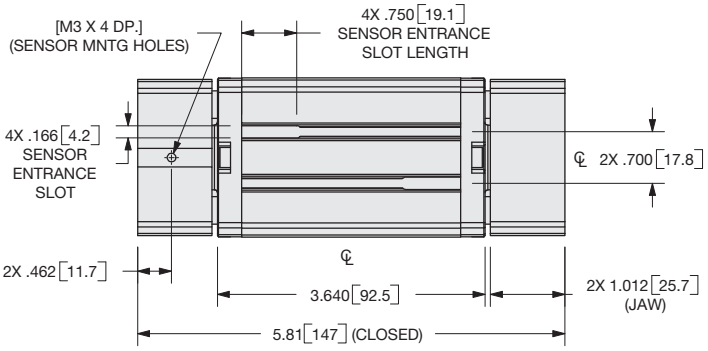
Flow Controls

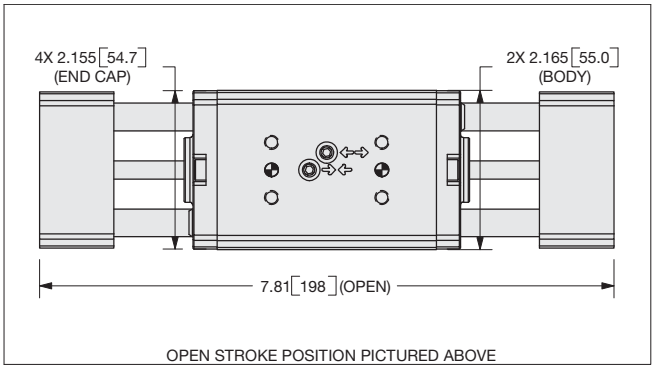
- Thumb screw adjust with locking nut for adjusting actuation time
- Available for 6mm OD tubing

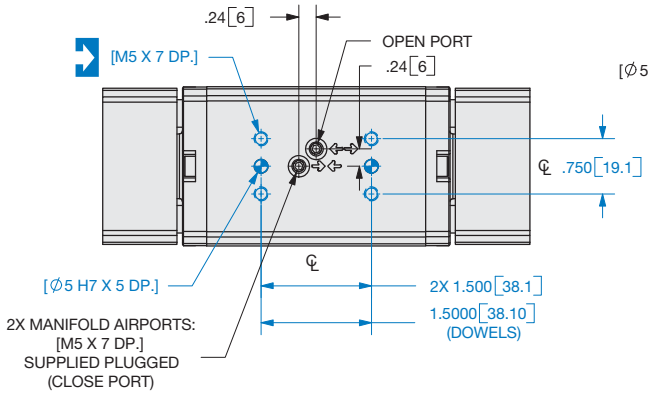
DIRECT CONNECT™

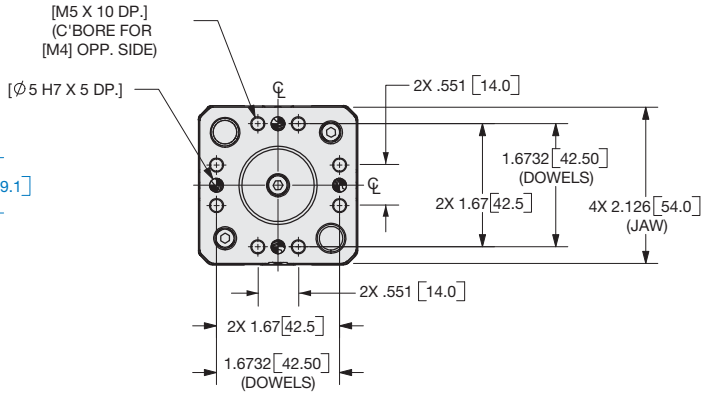
PARALLEL GRIPPERS DPW-375M-2
DIRECTCONNECT WIDE BODY SERIES

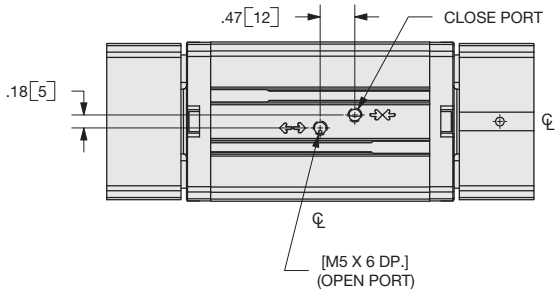
Robohand











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Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	**Metric [mm]** [0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | STROKE | WIPERS | VITON SEALS

DPW-375M - 2 - NS - W - V

NON-SYNCHRONOUS

JAW SYNCHRONIZATION **NS** Non-Synchronous Operation
__ Leave Blank for Synchronous (standard)
WIPERS **W** Shaft Wipers
VITON® SEALS **V**

SAMPLE ORDER: DPW-375M-2-W-V
Ex: DPW-375 M Gripper, 50.8mm Stroke, Shaft Wipers, Viton Seals

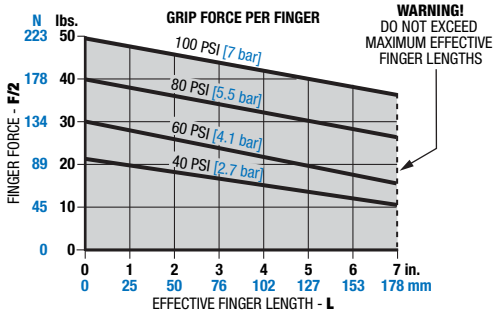
SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor Short Barrel (with Qk. Disc.)*	OHSP-017	1,2,3 or 4
NPN Magneto Resistive Sensor Short Barrel (with Qk. Disc.)*	OHSN-017	1,2,3 or 4
PNP Magneto Resistive Sensor 90° Barrel (with Qk. Disc.)*	OHSP-011	1,2,3 or 4
NPN Magneto Resistive Sensor 90° Barrel (with Qk. Disc.)*	OHSN-011	1,2,3 or 4
Quick Disconnect Cable (2 meters long)*	CABL-010	1,2,3 or 4
Quick Disconnect Cable (5 meters long)*	CABL-013	1,2,3 or 4
PNP Inductive Sensor 3mm (with Qk. Disc.)*	OISP-019	1 or 2
NPN Inductive Sensor 3mm (with Qk. Disc.)*	OISN-019	1 or 2
PNP Inductive Sensor 4mm (with Qk. Disc.)*	OISP-014	1 or 2
NPN Inductive Sensor 4mm (with Qk. Disc.)*	OISN-014	1 or 2
Sensor Mounting Kit for 3mm or 4mm Inductive Sensor	OSMK-117	1

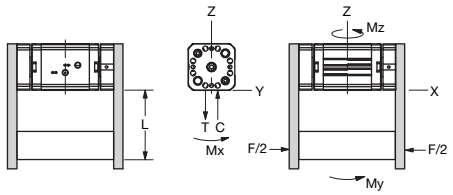
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit (Standard Buna-N)	SLKT-339	1
Seal Repair Kit (Viton®)	SLKT-339V	1
Manifold Seal Kit (Viton®)	SLKT-199V	1
Shaft Wiper Seal Kit	SLKT-340	1
Fail Safe Valve M5	OFSV-004	1
Adjustable Flow Control	VLVF-008	1 or 2

*Sensor and cable sold separately

DIRECTCONNECT™

Specifications	DPW-375M-2	
Total Rated Grip Force **F** @ 100 psi, 7 bar	100 lbs.	445 N
Stroke	2.00 in.	50.8mm
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	0.938 in.	23.8 mm
Displacement	1.382 in^3.	22.6 cm^3
Weight	2.66 lbs.	1.20 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.20 sec.	0.20 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	

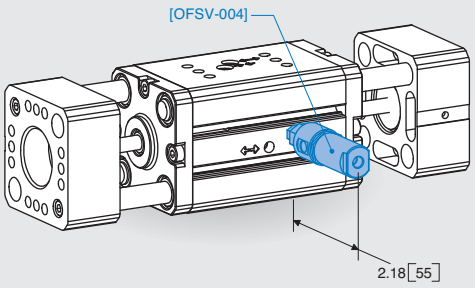




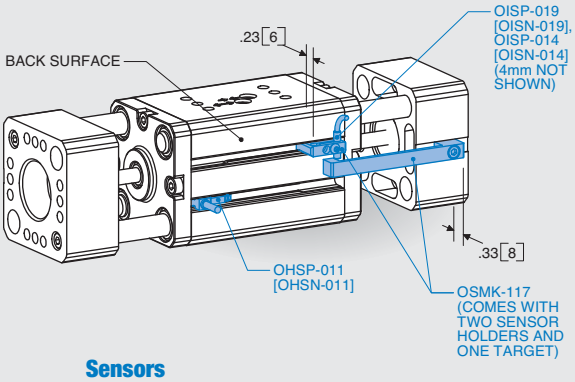
Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	120 lbs. [534 N]	24 lbs. [107 N]
Maximum Compressive **C**	120 lbs. [534 N]	24 lbs. [107 N]
Maximum Moment $\mathbf{M_x}$	210 in.-lbs. [24 Nm]	42 in.-lbs. [5 Nm]
Maximum Moment $\mathbf{M_y}$	300 in.-lbs. [34 Nm]	60 in.-lbs. [7 Nm]
Maximum Moment $\mathbf{M_z}$	210 in.-lbs. [24 Nm]	42 in.-lbs. [5 Nm]

†Capacities are per set of jaws and are not simultaneous

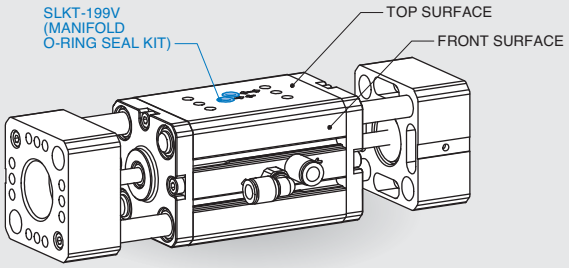
Accessory Mounting Technical Data



Failsafe Valves
- Used in applications where it is critical that the part being gripped not be dropped if air pressure is lost
- Mounts directly to gripper
- M5 air port



Sensors
- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting Kits required
- Low profile underflush sensor version or 90° wire exit sensor version
- Simple adjustment with slotted screw driver
- PNP and NPN inductive available
- Inductive sensor bracket mounts 3mm sensor
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



Multiple Air Port Locations
- 2 standard air port locations (top and front surface)
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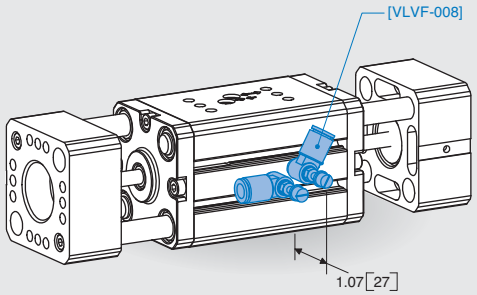
- Seals in manifold kit are Viton®
- Front air ports are tapped for M5 fittings

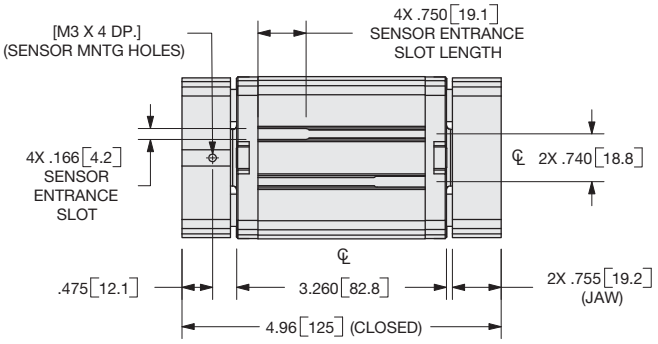


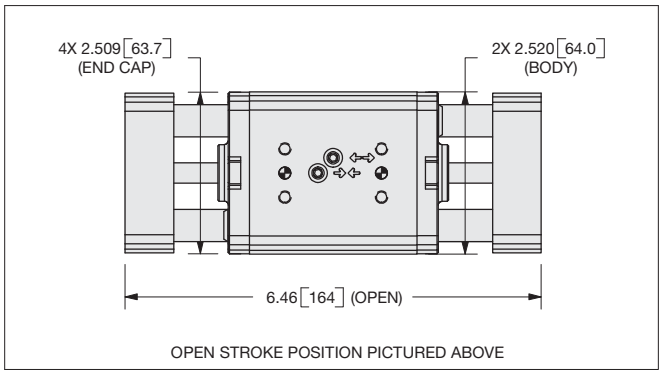
Flow Controls
- Thumb screw adjust with locking nut for adjusting actuation time
- Available for 6mm OD tubing

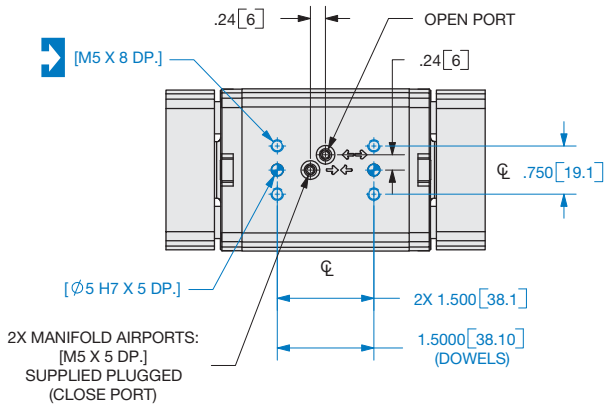
DIRECT CONNECT™

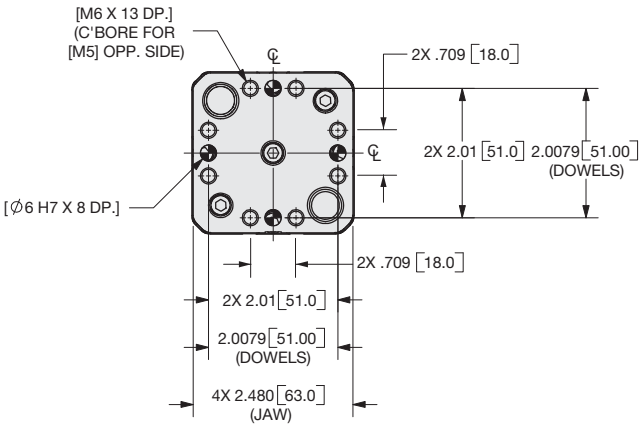
PARALLEL GRIPPERS DPW-500M-1
DIRECTCONNECT WIDE BODY SERIES

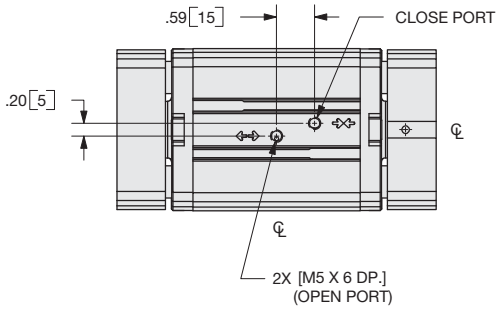
Robohand











UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | STROKE | WIPERS | VITON SEALS

DPW-500M - 1 - NS - W - V

NON-SYNCHRONOUS

JAW SYNCHRONIZATION **NS** Non-Synchronous Operation
__ Leave Blank for Synchronous (standard)

WIPERS **W** Shaft Wipers

VITON® SEALS **V**

SAMPLE ORDER: DPW-500M-1-W-V

Ex: DPW-500M Gripper, 38.1mm Stroke, Shaft Wipers, Viton Seals

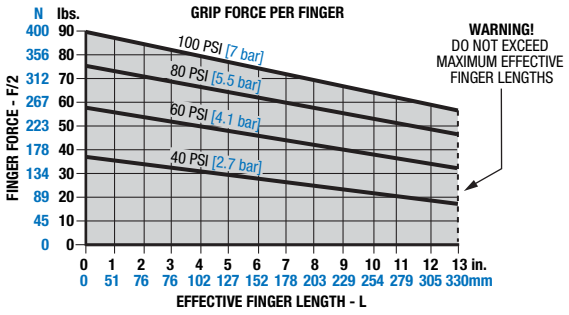
SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor Short Barrel (with Qk. Disc.)*	OHSP-017	1,2,3 or 4
NPN Magneto Resistive Sensor Short Barrel (with Qk. Disc.)*	OHSN-017	1,2,3 or 4
PNP Magneto Resistive Sensor 90° Barrel (with Qk. Disc.)*	OHSP-011	1,2,3 or 4
NPN Magneto Resistive Sensor 90° Barrel (with Qk. Disc.)*	OHSN-011	1,2,3 or 4
Quick Disconnect Cable (2 meters long)*	CABL-010	1,2,3 or 4
Quick Disconnect Cable (5 meters long)*	CABL-013	1,2,3 or 4
PNP Inductive Sensor 3mm (with Qk. Disc.)*	OISP-019	1 or 2
NPN Inductive Sensor 3mm (with Qk. Disc.)*	OISN-019	1 or 2
PNP Inductive Sensor 4mm (with Qk. Disc.)*	OISP-014	1 or 2
NPN Inductive Sensor 4mm (with Qk. Disc.)*	OISN-014	1 or 2
Sensor Mounting Kit for 3mm or 4mm Inductive Sensor	OSMK-118	1

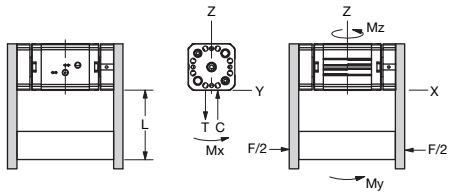
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit (Standard Buna-N)	SLKT-341	1
Seal Repair Kit (Viton®)	SLKT-341V	1
Manifold Seal Kit (Viton®)	SLKT-199V	1
Shaft Wiper Seal Kit	SLKT-342	1
Fail Safe Valve M5	OFSV-004	1
Adjustable Flow Control	VLVF-008	1 or 2

*Sensor and cable sold separately

DIRECTCONNECT™

Specifications	DPW-500M-1	
Total Rated Grip Force **F** @ 100 psi, 7 bar	180 lbs.	800 N
Stroke	1.50 in.	38.1 mm
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	1.250 in.	31.8 mm
Displacement	1.841 in^3.	30.2 cm^3
Weight	3.27 lbs.	1.48 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.20 sec.	0.20 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	

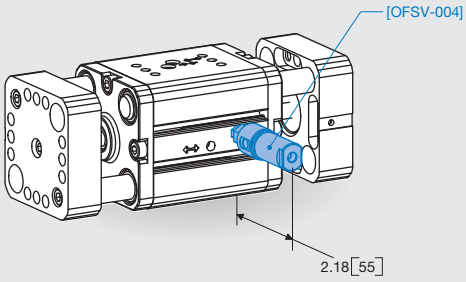




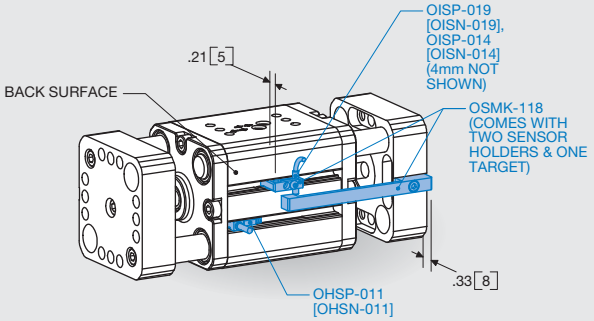
Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	600 lbs. [2668 N]	60 lbs. [267 N]
Maximum Compressive **C**	600 lbs. [2668 N]	60 lbs. [267 N]
Maximum Moment $\mathbf{M_x}$	600 in.-lbs. [68 Nm]	60 in.-lbs. [7 Nm]
Maximum Moment $\mathbf{M_y}$	900 in.-lbs. [102 Nm]	90 in.-lbs. [10 Nm]
Maximum Moment $\mathbf{M_z}$	600 in.-lbs. [68 Nm]	60 in.-lbs. [7 Nm]

†Capacities are per set of jaws and are not simultaneous

Accessory Mounting Technical Data



Failsafe Valves
- Used in applications where it is critical that the part being gripped not be dropped if air pressure is lost
- Mounts directly to gripper
- M5 air port



Sensors
- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting Kits required
- Low profile underflush sensor version or 90° wire exit sensor version
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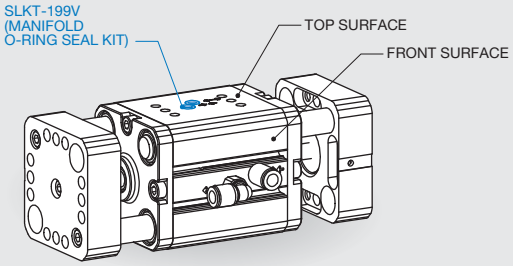
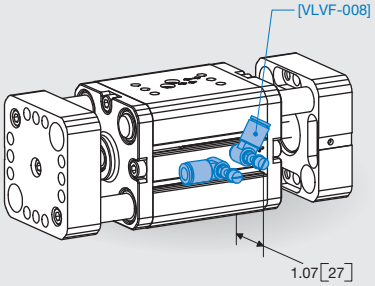


Multiple Air Port Locations
- 2 standard air port locations (top and front surface)
- Top manifold air ports are supplied plugged
- Seals in manifold kit are Viton®
- Front air ports are tapped for M5 fittings

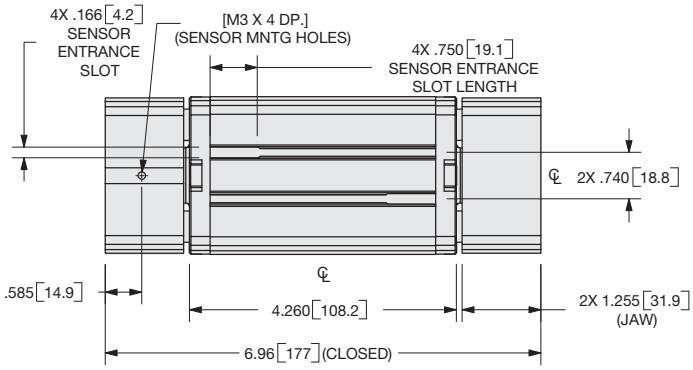


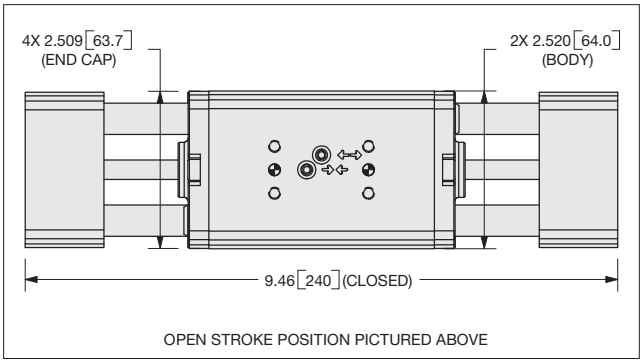
Flow Controls
- Thumb screw adjust with locking nut for adjusting actuation time
- Available for 6mm OD tubing

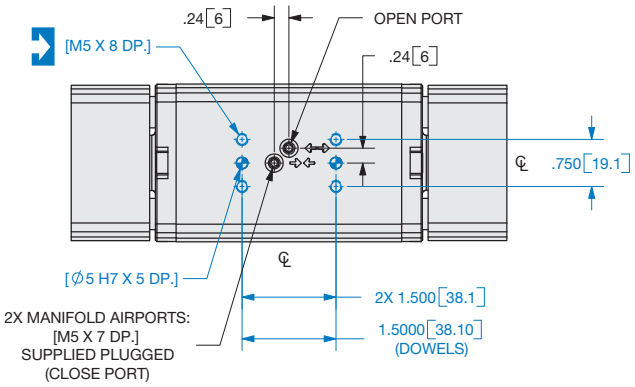
DIRECT CONNECT™

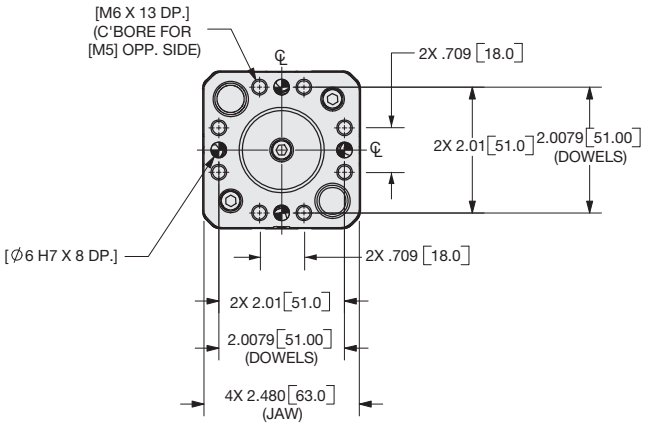
PARALLEL GRIPPERS DPW-500M-2
DIRECTCONNECT WIDE BODY SERIES

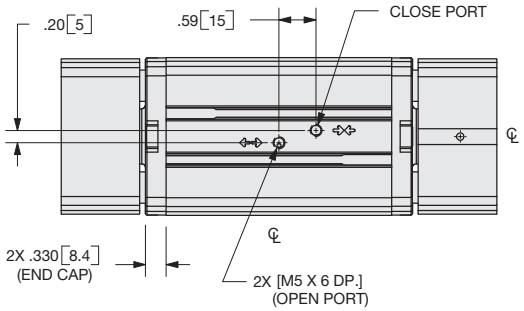
Robohand











NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

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Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	**Metric [mm]** [0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | STROKE | WIPERS | VITON SEALS

DPW-500M - 2 - NS - W - V

NON-SYNCHRONOUS

JAW SYNCHRONIZATION	**NS**	Non-Synchronous Operation
	__	Leave Blank for Synchronous (standard)
WIPERS	**W**	Shaft Wipers
VITON® SEALS	**V**	

SAMPLE ORDER: DPW-500M-2-W-V

Ex: DPW-500M Gripper, 63.5mm Stroke, Shaft Wipers, Viton Seals

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor Short Barrel (with Qk. Disc.)*	OHSP-017	1,2,3 or 4
NPN Magneto Resistive Sensor Short Barrel (with Qk. Disc.)*	OHSN-017	1,2,3 or 4
PNP Magneto Resistive Sensor 90° Barrel (with Qk. Disc.)*	OHSP-011	1,2,3 or 4
NPN Magneto Resistive Sensor 90° Barrel (with Qk. Disc.)*	OHSN-011	1,2,3 or 4
Quick Disconnect Cable (2 meters long)*	CABL-010	1,2,3 or 4
Quick Disconnect Cable (5 meters long)*	CABL-013	1,2,3 or 4
PNP Inductive Sensor 3mm (with Qk. Disc.)*	OISP-019	1 or 2
NPN Inductive Sensor 3mm (with Qk. Disc.)*	OISN-019	1 or 2
PNP Inductive Sensor 4mm (with Qk. Disc.)*	OISP-014	1 or 2
NPN Inductive Sensor 4mm (with Qk. Disc.)*	OISN-014	1 or 2
Sensor Mounting Kit for 3mm or 4mm Inductive Sensor	OSMK-118	1

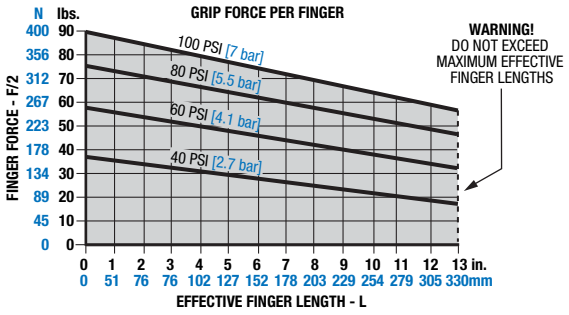
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit (Standard Buna-N)	SLKT-341	1
Seal Repair Kit (Viton®)	SLKT-341V	1
Manifold Seal Kit (Viton®)	SLKT-199V	1
Shaft Wiper Seal Kit	SLKT-342	1
Fail Safe Valve M5	OFSV-004	1
Adjustable Flow Control	VLVF-008	1 or 2

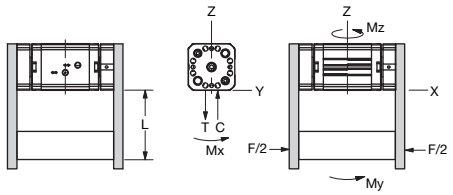
*Sensor and cable sold separately

DIRECTCONNECT™

PARALLEL GRIPPERS DPW-500M-2
DIRECT CONNECT WIDE BODY SERIES

Specifications	DPW-500M-2	
Total Rated Grip Force **F** @ 100 psi, 7 bar	180 lbs.	800 N
Stroke	2.50 in.	63.5 mm
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	1.250 in.	31.8 mm
Displacement	3.068 in^3	50.3 cm^3
Weight	4.39 lbs.	2.0 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.28 sec.	0.28 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	





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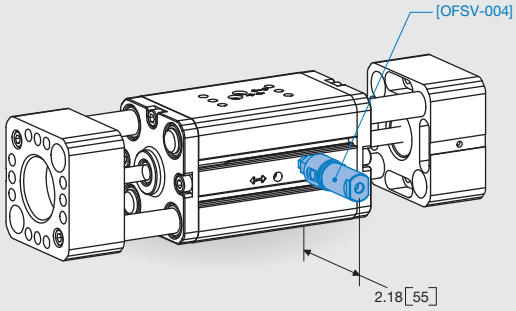
Accessory Mounting Technical Data



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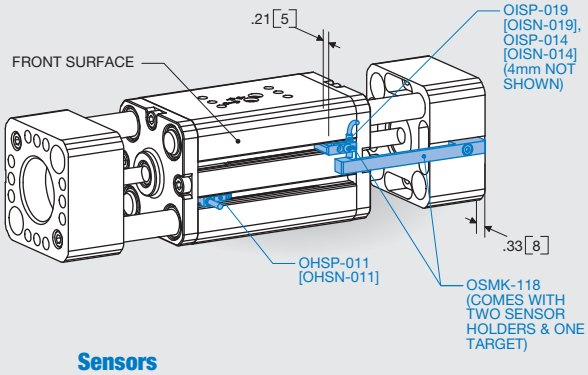

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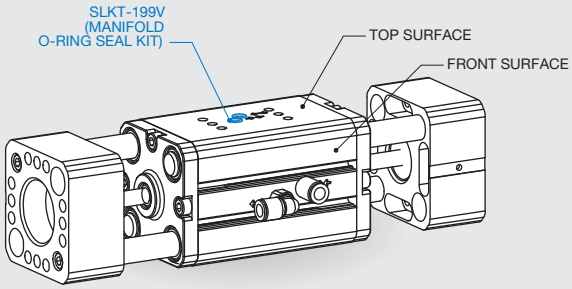

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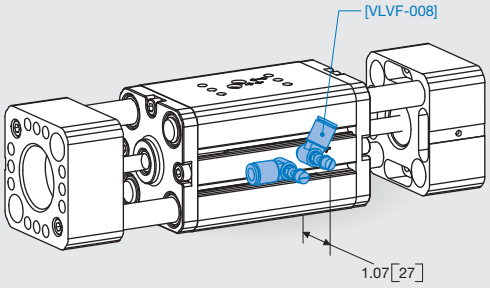
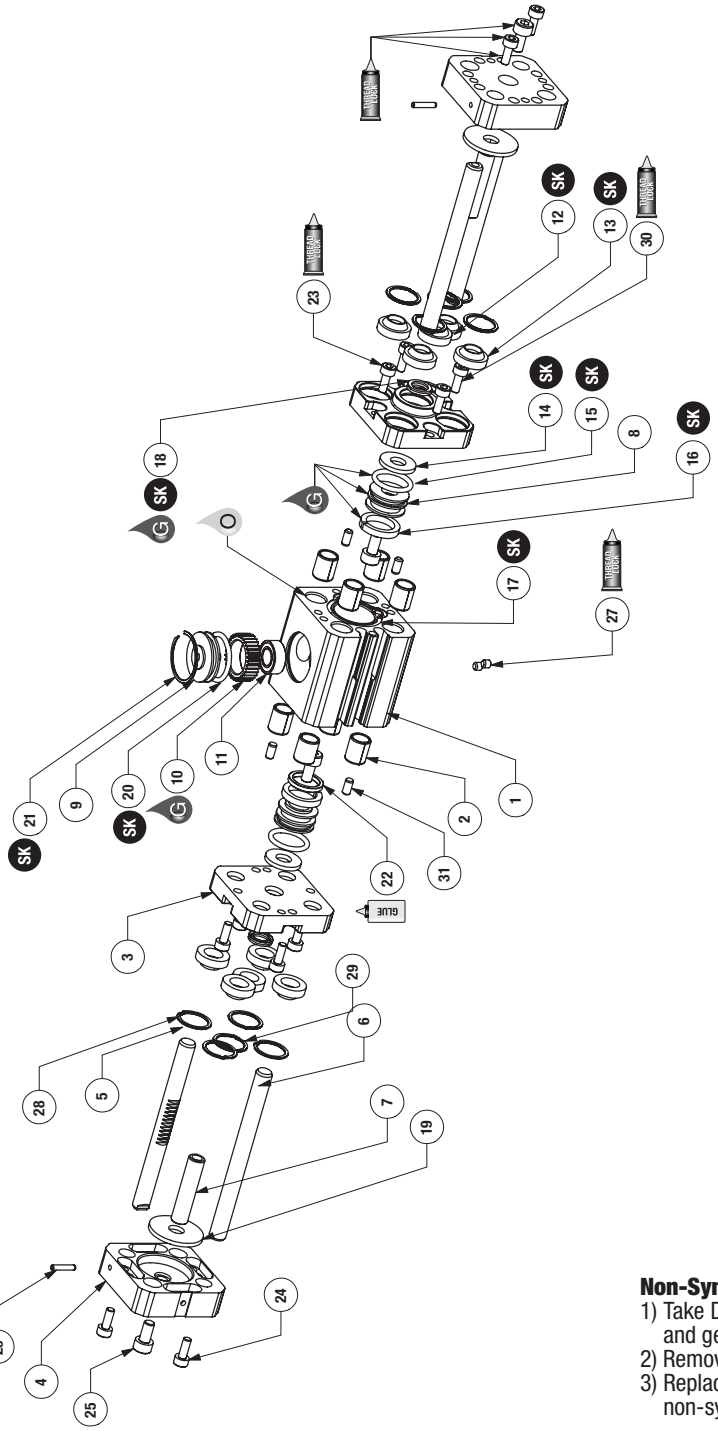


Flow Controls
- Thumb screw adjust with locking nut for adjusting actuation time
- Available for 6mm OD tubing

DIRECT CONNECT™

DPW SERIES EXPLODED VIEW



Item	Qty	Name
01	1	Body
02	8	Bushing, Oil Impregnated Bronze
03	2	End Cap
04	2	Jaw
05*	2	Guide Shaft, Rack
06*	2	Guide Shaft (Qty 4 for -NS)
07	2	Piston Rod
08	2	Piston
09	1	Cap, Gear
10*	1	Gear
11*	1	Bearing, Radial
12*	2	Piston Rod Wiper (Shaft Wiper "-W" option only)
13*	8	Shaft Wiper (Shaft Wiper "-W" option only)
14	2	Piston Bumper
15	2	Piston O-ring
16	2	Teflon Ring
17*	2	Body O-ring
18	2	U-cup
19	2	Jaw Bumper
20	1	Gear Cap O-ring
21	1	Retaining Ring
22	1	Magnet
23	8	End Cap Mntg Screw
24	4	Guide Shaft Mntg Screw
25	4	Piston Shaft Mntg Screw
26*	2	Guide Shaft Alignment Dowel
27	2	Manifold Port Plug
28	8	Retainer Ring (Shaft Wiper "-W" Option only)
29	2	Retainer Ring (Shaft Wiper "-W" Option only)
30*	4	End Cap Mntg Screw
31	4	End Cap Dowel Pins

***Notes:**

1) Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.
2) Quantity of #6 is 4 when ordering a Non-synchronous gripper.
3) Items #5, #10, #11, and #26 are for synchronous grippers only.
4) Items #12 and #13 are for –W option only.
5) Item #17 (Body O-ring) shown in body groove.
6) Item #23 Quantity is 6 for 375-1 and 375-2 only.
7) Item #30 is only used in 375-1 and 375-2.

Assembly Procedure:

1) Lubricate and install seals on piston.
2) Install pistons and shafts.
3) Mount end caps to enclose piston assembly.
4) Install tooling plates and shafts.
5) Place bearing, shaft, and gear into body and install cap and retaining ring for sync version.

a) For disassembly, use magnet to pull gear out of body.
b) Install 2 gear shafts with teeth facing syncing gear. Use dowel to align gear shafts in correct position.

Non-Synchronous Procedure:

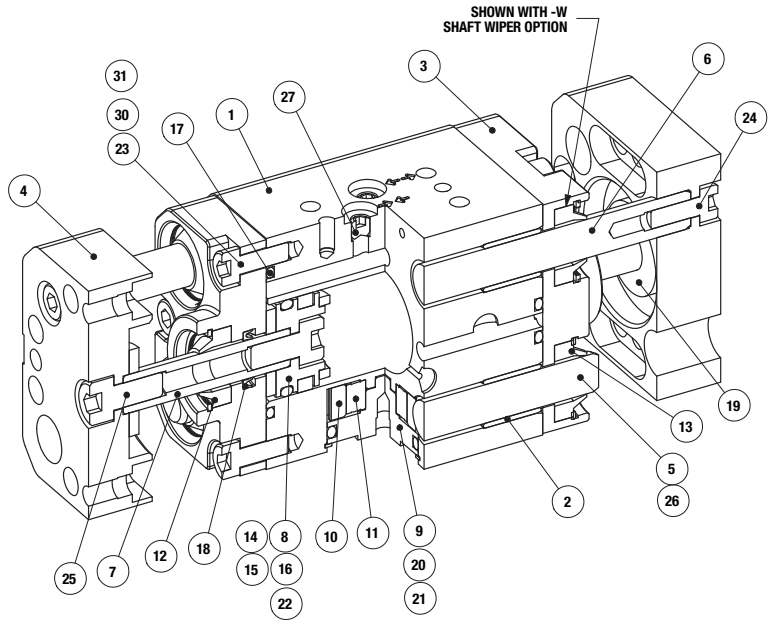
1) Take DPW synchronous gripper and remove the retaining ring and gear cap.
2) Remove gear from gripper.
3) Replace gear cap and retaining ring. The gripper is now non-synchronous

-W Option Assembly Procedure:

1) Take out guide shaft and piston rod mounting screws.
2) Remove jaws from guide shafts and piston rods.
3) Take out end cap mounting screws and pull off end caps. Take out piston.
4) Slide out shafts and press wipers in pockets thru front side. Install retaining rings.
5) Replace shafts, pistons, and end caps.
6) Be sure to apply thread locker to mounting screws. The gripper now has shaft wipers.

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon™ Based Grease | GLUE Super Bonder | Third Angle Projection

DPW SERIES ASSEMBLED VIEW

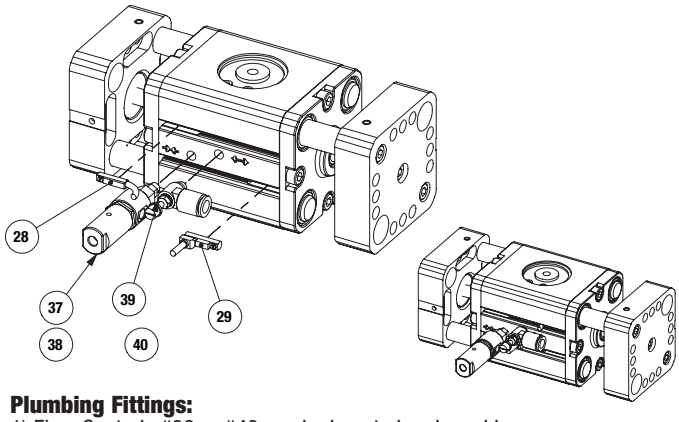


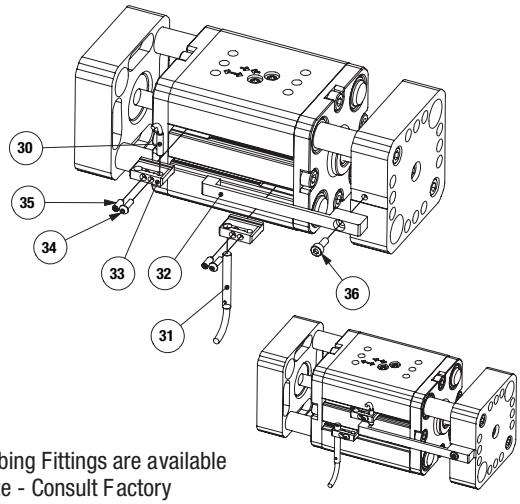
Item	Qty	Name
01	1	Body
02	8	Bushing, Oil Impregnated Bronze
03	2	End Cap
04	2	Jaw
05*	2	Guide Shaft, Rack
06*	2	Guide Shaft (Qty 4 for NS)
07	2	Piston Rod
08	2	Piston
09	1	Cap, Gear
10*	1	Gear
11*	1	Bearing, Radial
12*	2	Piston Rod Wiper (Shaft Wiper "-W" option only)
13*	8	Shaft Wiper (Shaft Wiper "-W" option only)
14	2	Piston Bumper
15	2	Piston O-Ring
16	2	Teflon Ring
17*	2	Body O-Ring
18	2	U-cup
19	2	Jaw Bumper
20	1	Gear Cap O-ring
21	1	Retaining ring
22	1	Magnet
23	8	End Cap Mntg Screw
24	4	Guide Shaft Mntg Screw
25	4	Piston Shaft Mntg Screw
26*	2	Guide Shaft Alignment Dowel
27	2	Manifold Port Plug
28	8	Retainer Ring (Shaft Wiper "-W" Option only)
29	2	Retainer Ring (Shaft Wiper "-W" Option only)
30*	4	End Cap Mntg Screw
31	4	End Cap Dowel Pins

***Notes:**

1) Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.
2) Quantity of #6 is 4 when ordering a Non-synchronous gripper.
3) Items #5, #10, #11, and #26 are for synchronous grippers only.
4) Items #12 and #13 are for –W option only.
5) Item #17 (Body O-ring) shown in body groove.
6) Item #23 Quantity is 6 for 375-1 and 375-2 only.
7) Item #30 is only used in 375-1 and 375-2.

Accessory Installation & Adjustment Instructions





Plumbing Fittings:

1) Flow Controls #39 or #40 can be inserted and used in an y open or closed airport to help control the stroke actua tion.
2) Fail-Safe Valve #37 or #38 can be used in either the open or c losed airport to help limit the possibility of dropping the part if air pressure is lost.

Magneto-Resistive Sensors:

1) Insert sensors #28 or #29 into the opening a t the end of the profile slot and lock the sensor into position with the integra ted screw.

Inductive Sensors:

1) Mount inductive sensor target (#32) to ja w using mounting screw (#36).
2) Insert sensor bracket (#33) into slot of bod y.
3) Insert sensor (#30 or #31) into a ppropriate 3mm or 4mm opening in bracket and adjust sensor depth so tha t sensor light indicates target (#32).
4) Tighten sensor locking screw (#34).
5) Position sensor bracket for desired stroke detection.
6) Tighten sensor bracket with set screw (#35) to lock stroke detection position.

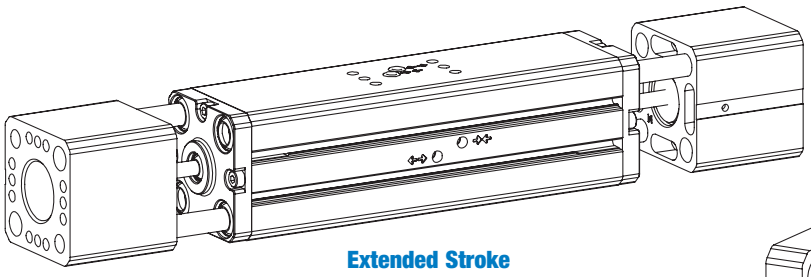
Other Plumbing Fittings are available for each size - Consult Factory

Item	Qty	Name
28	1,2	Magneto Resistive Sensor (short barrel) w/Qk. Disconnect
29	1,2	Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect
30	1,2	Inductive Sensor (3mm) w/Qk. Disconnect
31	1,2	Inductive Sensor (4mm) w/Qk. Disconnect (DPW-375 & 500 only)
39	1,2	Adjustable Flow Control (Imperial) #10-32 elbo w - 1/4" OD Push-in Style
40	1,2	Adjustable Flow Control (Metric) M5 elbo w - 6mm OD Push-in Style
37	1	Fail Safe Valve (Imperial) #10-32
38	1	Fail Safe Valve (Metric) M5

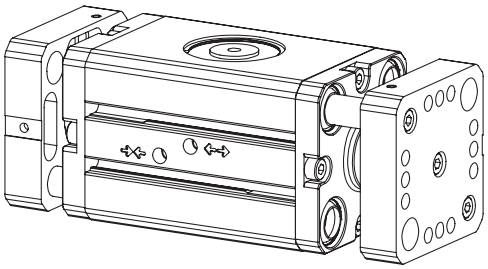
DPW SERIES SPECIALS

Smaller or Larger Bores
Metallic Rod Scrapers
Extended Strokes
Alternate Materials
and more…

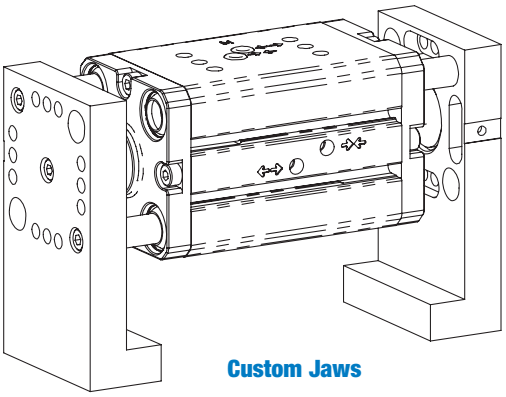
Drawings are for concept only.
Contact Robohand Tech Support
with project requirements.



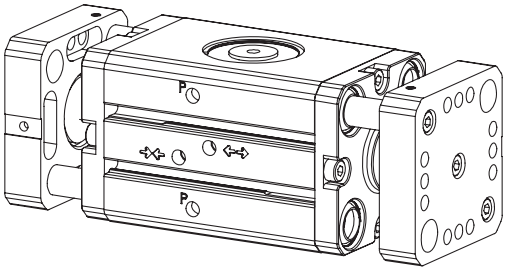
Extended Stroke



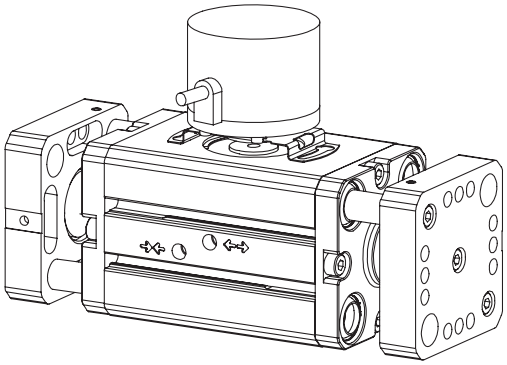
Fixed Jaw



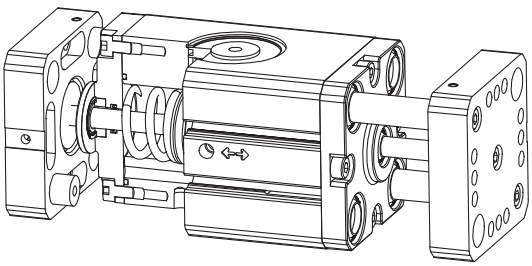
Custom Jaws



Purge Port

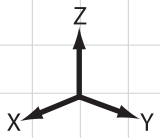


Multi-Positioning Sensing

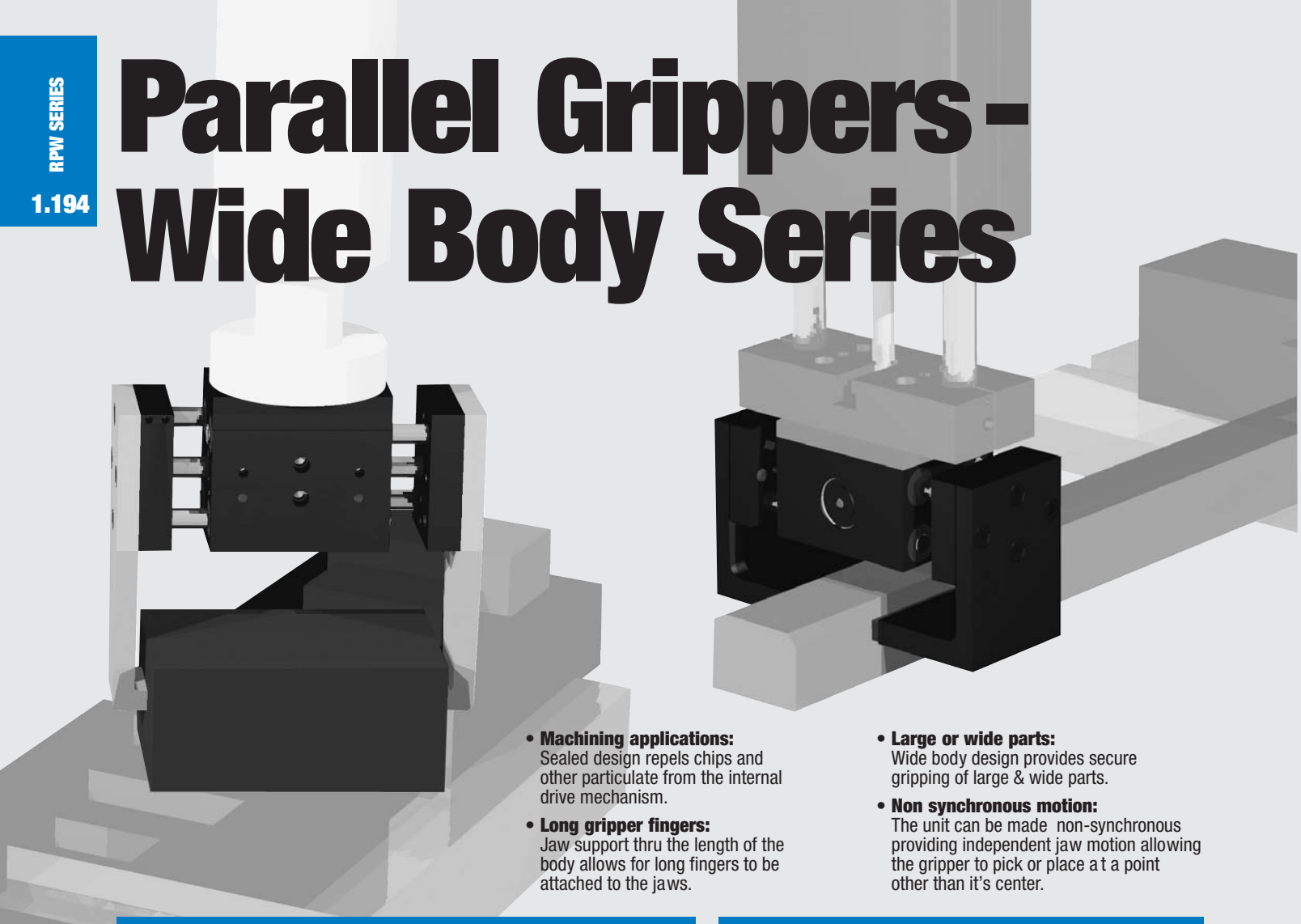


Spring Assist

Please describe your application. Include a sketch or attach additional sheets if necessary.



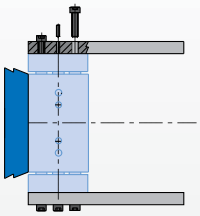
Parallel Grippers - Wide Body Series



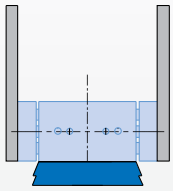
- **Machining applications:** Sealed design repels chips and other particulate from the internal drive mechanism.
- **Long gripper fingers:** Jaw support thru the length of the body allows for long fingers to be attached to the jaws.
- **Large or wide parts:** Wide body design provides secure gripping of large & wide parts.
- **Non synchronous motion:** The unit can be made non-synchronous providing independent jaw motion allowing the gripper to pick or place at a point other than it's center.

Mounting Information:

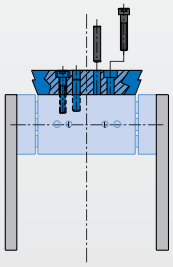
Grippers can be mounted & operated in any orientation

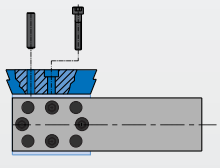


Fingers attach with screws and locate on jaws with dowel pins



Jaw design allows for simplified mounting of fingers





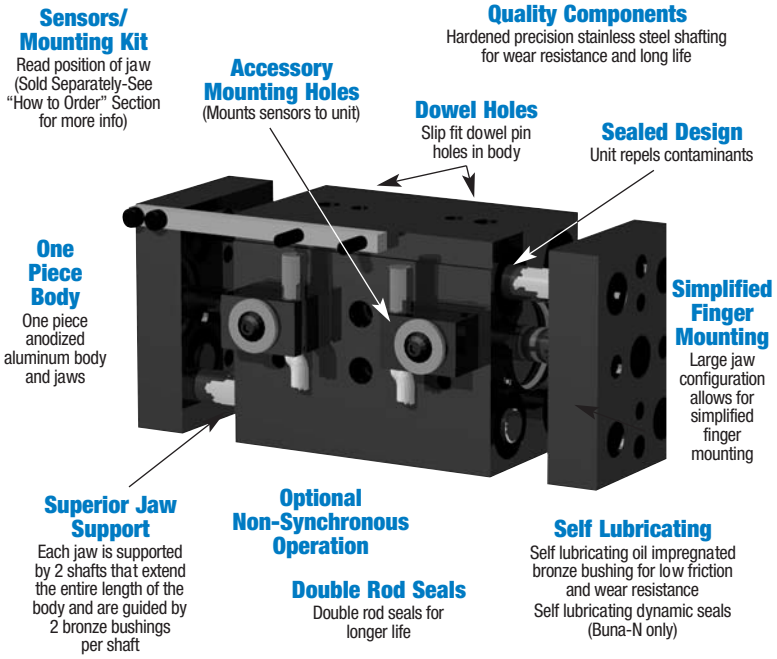
Body mounts on top or on side with screws and loca tes with slip fit dowel pin holes for accuracy

Technical Specifications:

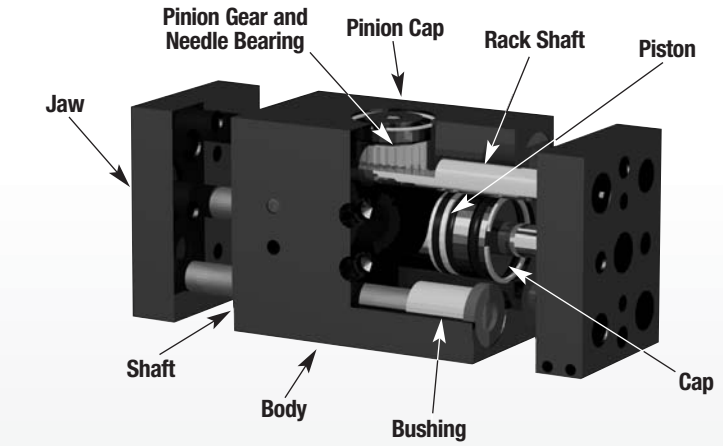
Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**3-7 bar**
Cylinder Type	**Dual Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required	**4-way, 2-position**	
Air Quality Requirements		
Air Filtration	**40 Micron or Better**	
Air Lubrication	**Not Necessary***	
Air Humidity	**Low Moisture Content (dry)**	
Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~300° F**	**-30°~150° C**
Maintenance Specifications†		
Expected Life		
Normal Application	**5 million cycles**	
w/ Preventative Maintenance	**10+ million cycles***	
Field Repairable	**Yes**	
Seal Repair Kits Available	**Yes**	

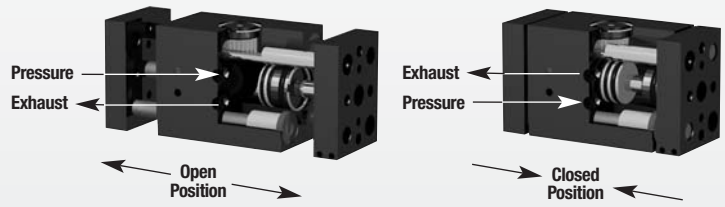
*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features



Operating Principle





- Two shafts, one with a rack cut into it, are securely fastened to each of the jaws and are supported through the length of the body.
- Two double acting opposed pistons provide power to the jaws.
- The rack shafts of each jaw slide in opposite directions of one another and are synchronized by a pinion gear.
- This gripper is suitable for internal or external gripping.

U.S. Patent # 5,163,729
Designed and manufactured in the USA

Style-RPW Parallel Gripper

Size -625M-1

	625-1	625M-1
Stroke:	2.00 in.	50.8 mm
Grip Force:	240 lb	1068 N
Weight:	6.5 lb	2.95 Kg

See Page 1.196

Style-RPW Parallel Gripper

Size -625M-2

	625-2	625M-2
Stroke:	3.50 in.	88.9 mm
Grip Force:	240 lb	1068 N
Weight:	7.8 lb	3.55 Kg

See Page 1.197

Style-RPW Parallel Gripper

Size -750M

	750	750M
Stroke:	4.50 in.	114.3 mm
Grip Force:	470 lb	2091 N
Weight:	14 lb	6.36 Kg

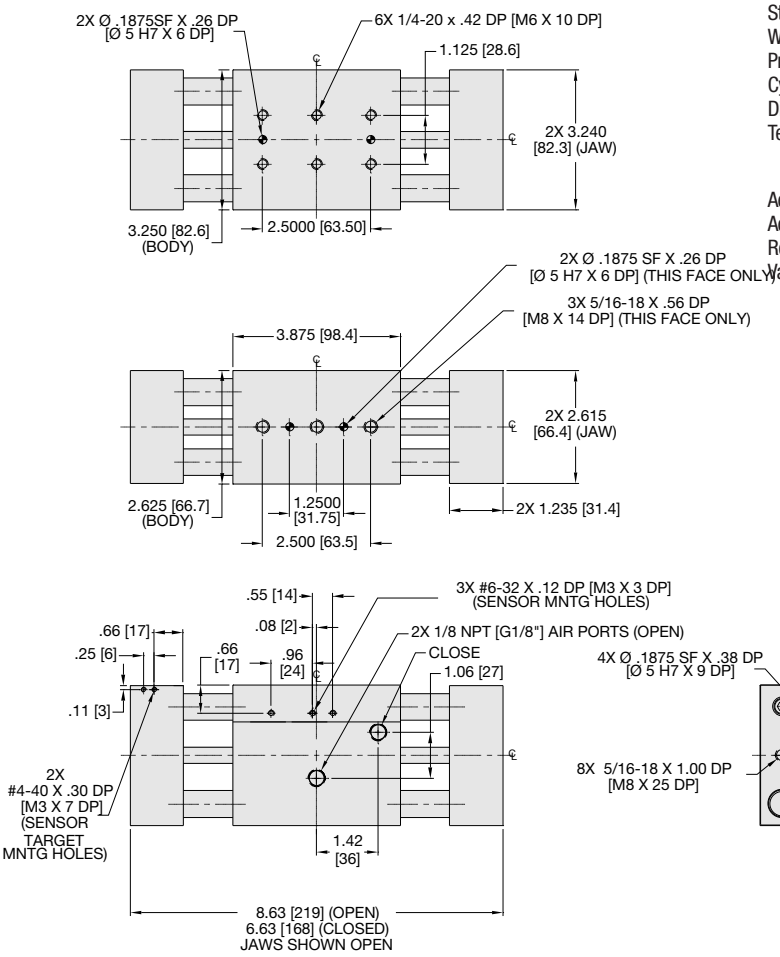
See Page 1.198

Note: Please refer to the New DPW series for sizes of RPW-250 through RPW-500-2 on pages 1.178 to 1.188. The RPW series information on these sizes is still available on our website and are available for sale. We encourage you to consider the new DPW design for new projects.

PARALLEL GRIPPER RPW-625M-1
WIDE BODY SERIES

Robohand

Specifications	RPW-625-1	RPW-625M-1
Total Rated Grip Force **F** @ 100 psi, 7 bar	240 lb	1068 N
Stroke	2.00 in.	50.8 mm
Weight	6.5 lb	3.0 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	1.625 in.	41.3 mm
Displacement	1.320 in^3.	21.6 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.52 sec.	0.52 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate double acting	4-way, 2-position	



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

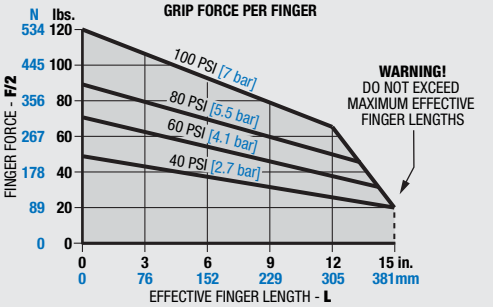
Third Angle Projection

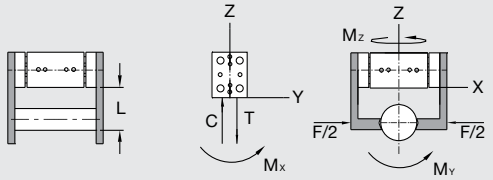
All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	1200 lbs.	5338 N	125 lbs.	556 N
Maximum Compressive **C**	1200 lbs.	5338 N	125 lbs.	556 N
Maximum Moment M_x	1000 in.-lbs.	113 Nm	100 in.-lbs.	11 Nm
Maximum Moment M_y	1500 in.-lbs.	170 Nm	125 in.-lbs.	14 Nm
Maximum Moment M_z	1000 in.-lbs.	113 Nm	100 in.-lbs.	11 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

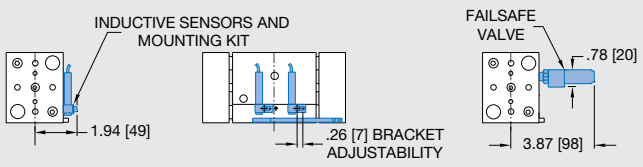
BASIC MODEL — NON-SYNCHRONOUS

RPW-625 M -1- NS - V

METRIC — VITON® SEALS

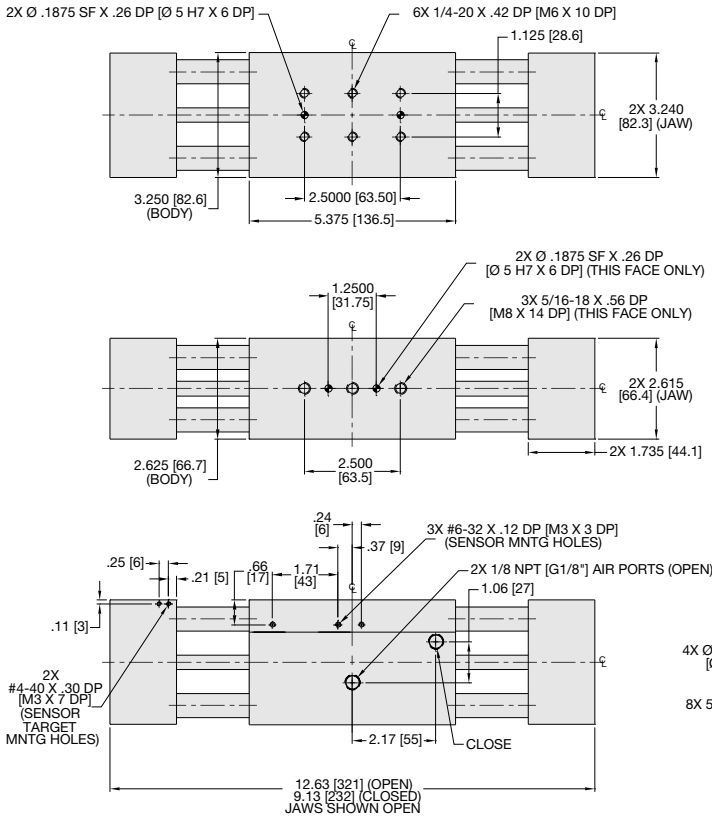
SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	OSMK-074	1
NPN Inductive Sensor with Quick Disconnect*	OISN-011	1 or 2
PNP Inductive Sensor with Quick Disconnect*	OISP-011	1 or 2
Quick Disconnect 2 Meter Cable Length*	CABL-010	1 or 2
Quick Disconnect 5 Meter Cable Length*	CABL-013	1 or 2
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	OFSV-002	1
Fail Safe Valve (Metric)	OFSV-005	1
Standard Seal Repair Kit	SLKT-071	1
Viton® Seal Repair Kit	SLKT-071V	1

*Sensor and cable sold separately.



PARALLEL GRIPPER RPW-625M-2
WIDE BODY SERIES

Specifications	RPW-625-2	RPW-625M-2
Total Rated Grip Force **F** @ 100 psi, 7 bar	240 lb	1068 N
Stroke	3.50 in.	88.9 mm
Weight	7.8 lb	3.6 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	1.625 in.	41.3 mm
Displacement	2.310 in³.	37.9 cm³
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.69 sec.	0.69 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate double acting	4-way, 2-position	



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

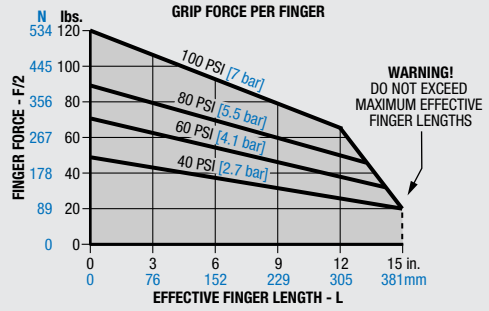
Third Angle Projection

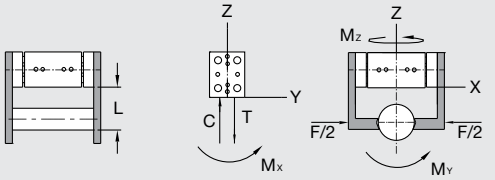
All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	1200 lb	5338 N	125 lb	556 N
Maximum Compressive **C**	1200 lb	5338 N	125 lb	556 N
Maximum Moment **Mx**	1000 in.-lb	113 Nm	100 in.-lb	11 Nm
Maximum Moment **My**	1500 in.-lb	170 Nm	125 in.-lb	14 Nm
Maximum Moment **Mz**	1000 in.-lb	113 Nm	100 in.-lb	11 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

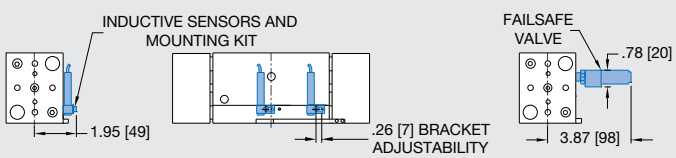
BASIC MODEL — NON-SYNCHRONOUS

RPW-625M-2-NS-V

METRIC — VITON® SEALS

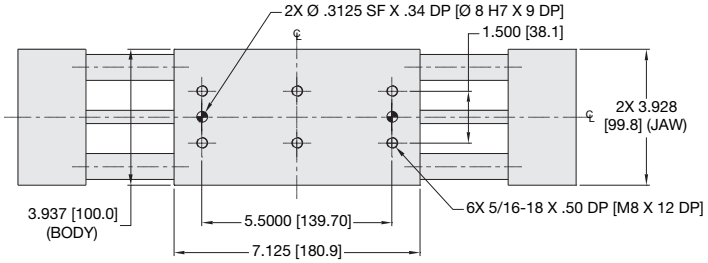
SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	OSMK-074	1
NPN Inductive Sensor with Quick Disconnect*	OISN-011	1 or 2
PNP Inductive Sensor with Quick Disconnect*	OISP-011	1 or 2
Quick Disconnect 2 Meter Cable Length*	CABL-010	1 or 2
Quick Disconnect 5 Meter Cable Length*	CABL-013	1 or 2
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	OFSV-002	1
Fail Safe Valve (Metric)	OFSV-005	1
Standard Seal Repair Kit	SLKT-071	1
Viton® Seal Repair Kit	SLKT-071V	1

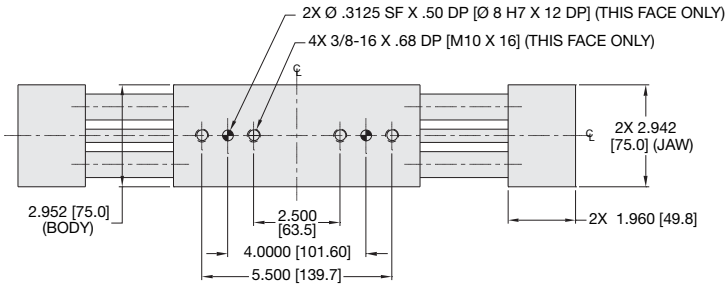
*Sensor and cable sold separately.

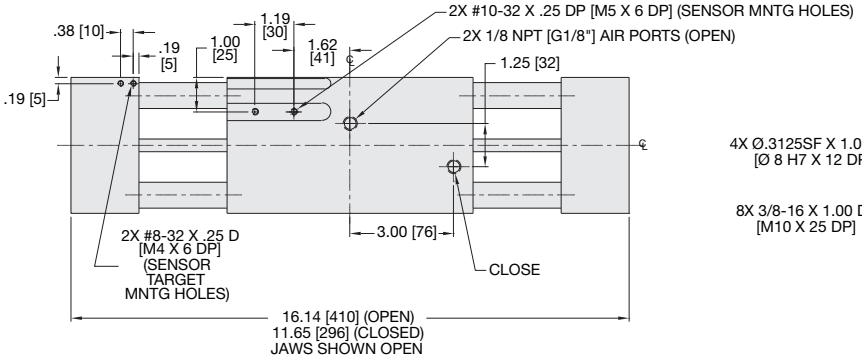


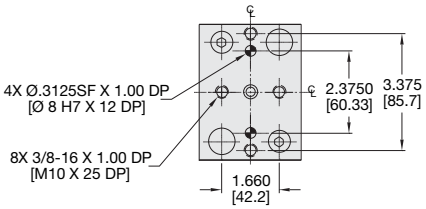
PARALLEL GRIPPER RPW-750M
WIDE BODY SERIES

Robohand









Specifications	RPW-750	RPW-750M
Total Rated Grip Force **F** @ 100 psi, 7 bar	470 lb	2091 N
Stroke	4.50 in.	114.3 mm
Weight	14 lb	6.4 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	2.000 in.	50.8 mm
Displacement	14.200 in^3.	232.7 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	1.00 sec.	1.00 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate double acting	4-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

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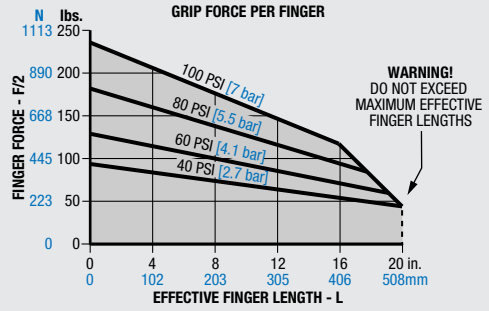
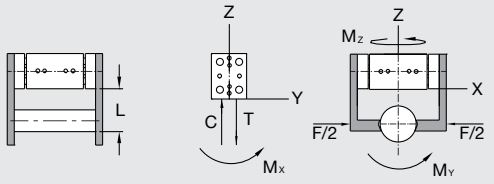




Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	2500 lb	11121 N	250 lb	1112 N
Maximum Compressive **C**	2500 lb	11121 N	250 lb	1112 N
Maximum Moment M_x	2000 in.-lb	226 Nm	200 in.-lb	22 Nm
Maximum Moment M_y	3000 in.-lb	339 Nm	250 in.-lb	28 Nm
Maximum Moment M_z	2000 in.-lb	226 Nm	200 in.-lb	22 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

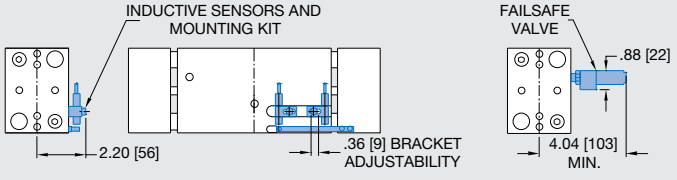
BASIC MODEL — NON-SYNCHRONOUS

RPW-750M-NS-V

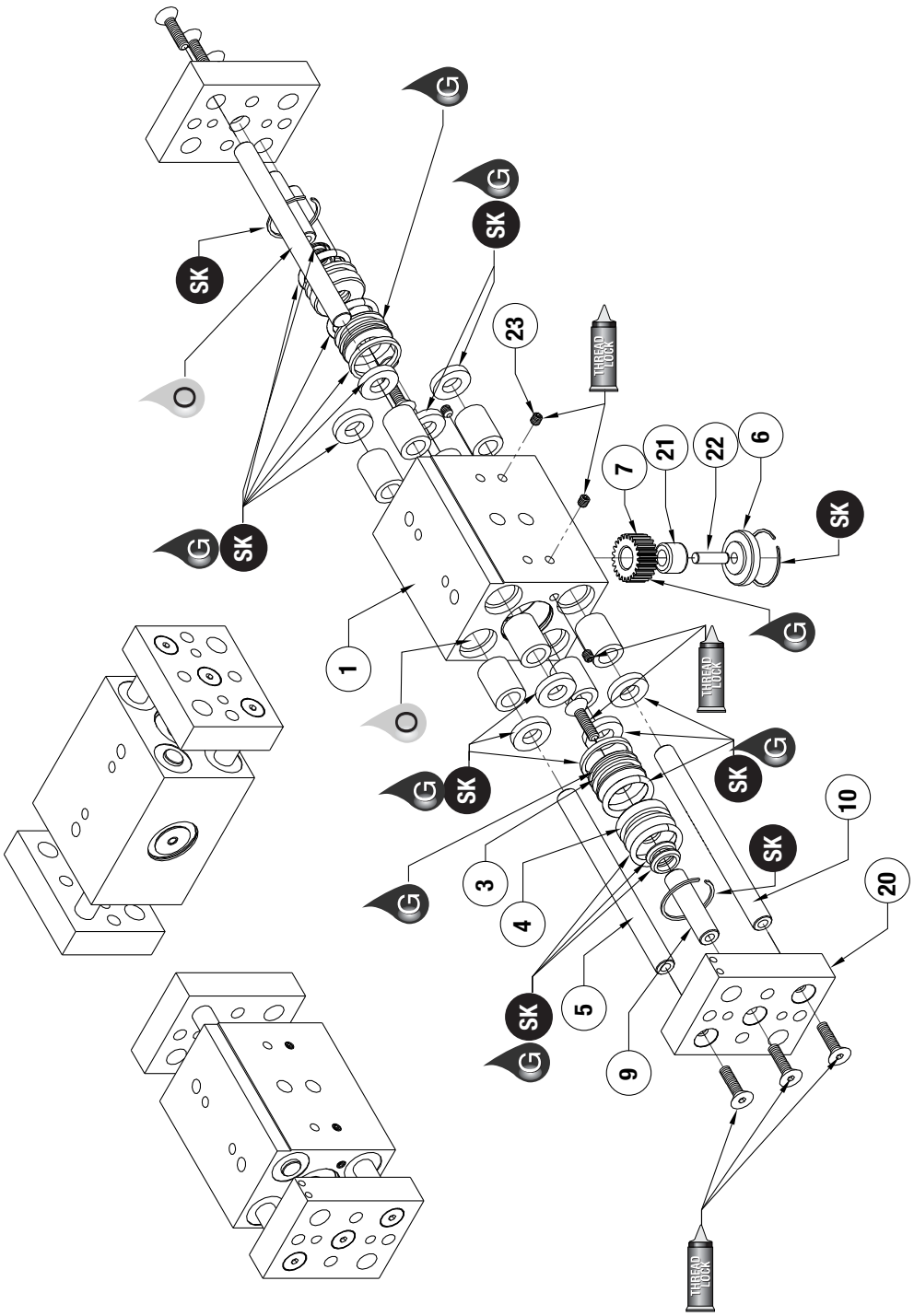
METRIC — VITON® SEALS

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	OSMK-014	1
NPN Inductive Sensor with Quick Disconnect*	OISN-011	1 or 2
PNP Inductive Sensor with Quick Disconnect*	OISP-011	1 or 2
Quick Disconnect 2 Meter Cable Length*	CABL-010	1 or 2
Quick Disconnect 5 Meter Cable Length*	CABL-013	1 or 2
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	OFSV-002	1
Fail Safe Valve (Metric)	OFSV-005	1
Standard Seal Repair Kit	SLKT-060	1
Viton® Seal Repair Kit	SLKT-060V	1

*Sensor and cable sold separately.



RPW Series Exploded View



Item	Qty	Name
01	1	Body
03	2	Piston
04	2	Cap
05	2	Shaft
06	1	Gear Cover
07	1	Gear
09	2	Shaft, Piston
10	2	Shaft,Gear
20	2	Block, End W/ Target Holes
21	1	Bearing, Needle
22	1	Dowel Pin
23	1	Ball

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedure

1) Lubricate and install seals.
2) Install pistons and shafts.*
3) Place piston caps and retaining rings into body
4) Install tooling plates and shafts
5) Place bearing, shaft, and gear** into body and install cap and retaining ring.for sync. version:

a) For disassembly, use magnet to pull gear out of body.
b) Install 2 rack shafts with teeth facing syncing gear.

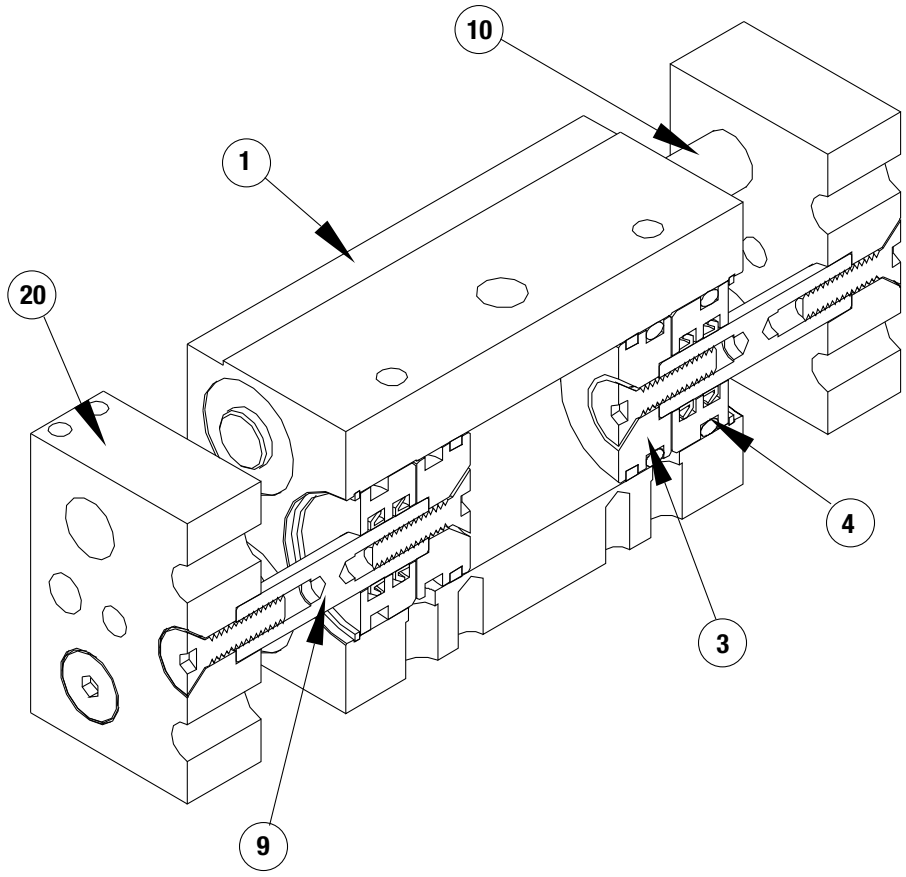
Non-Synchronous Procedure

1) Take RPW synchronous gripper and remove the retainer ring and gear cover.
2) Slide out dowel pin and bearing.
3) Remove gear from gripper. (a magnet is often very helpful in removing the gear.)
4) Replace the dowel pin, gear cover, and retainer ring. The gripper is now non-synchronous.

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

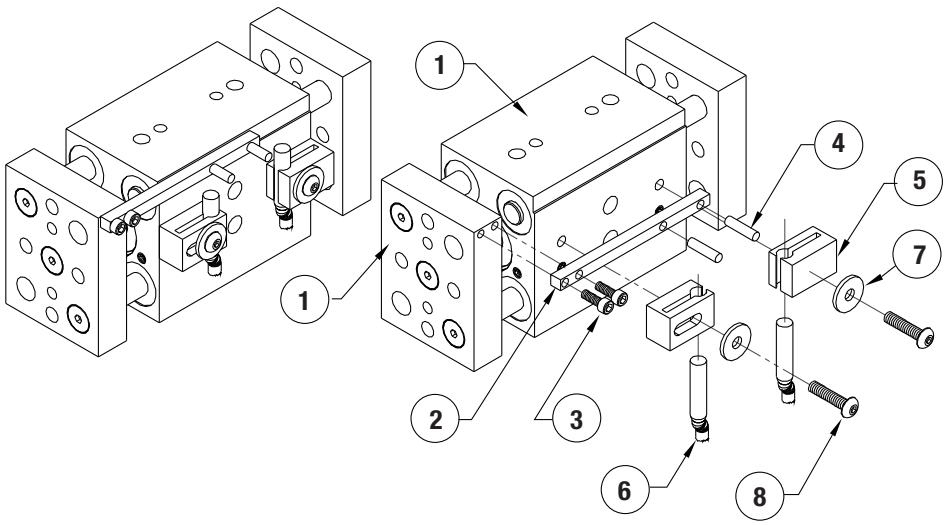
RPW Series Assembled View



Item	Qty	Name
01	1	Body
03	2	Piston
04	2	Cap
05	2	Shaft
06	1	Gear Cover
07	1	Gear
09	2	Shaft, Piston
10	2	Shaft,Gear
20	2	Block, End W/ Target Holes
21	1	Bearing, Needle
22	1	Dowel Pin
23	1	Ball

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Accessory Installation & Adjustment Instructions



Install target as shown, install sensors as shown, adjust for proper end of stroke sensing.

SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection

DESIGN NOTES

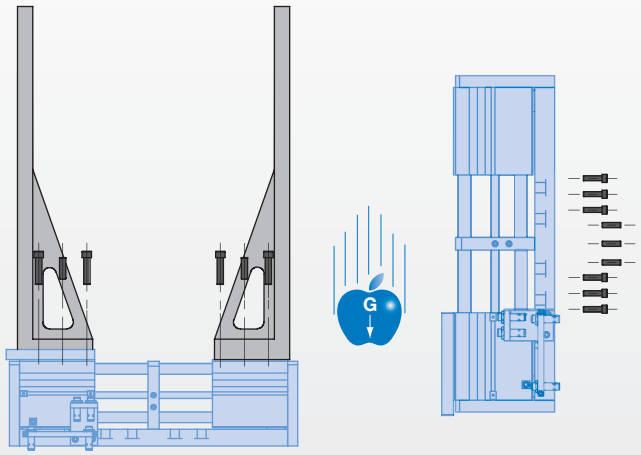
QUALITY PRECISION DURABILITY

Custom Wheel Handling Gripper Series

- **Large, heavy or wide parts:** Wide body & long stroke design provide secure gripping of large heavy parts.
- **Machining & foundry applications:** Rod wipers repel chips and other particulate.
- **Gripper Interchangeability:** Bolt in replacement for PHD's GRR series gripper
- **Multiple Sensing Options:** Choose between inductive proximity sensors or a linear encoder.
- **Maximum rigidity:** Jaws are supported by 3 shafts, shafts are supported at 3 points.
- **Long Finger Applications:** Rigid design and full body support of jaws allows for longer finger lengths.
- **Non-synchronous motion:** The unit can be made non-synchronous providing independent jaw motion allowing the gripper to pick and place at a point other than it's center.

Mounting Information:

Grippers can be mounted & operated in any orientation



Fingers mount on the bottom of the jaws with screws and dowel pins.

Body mounts with screws from behind and slip fit dowel pin holes for accuracy.

Technical Specifications:

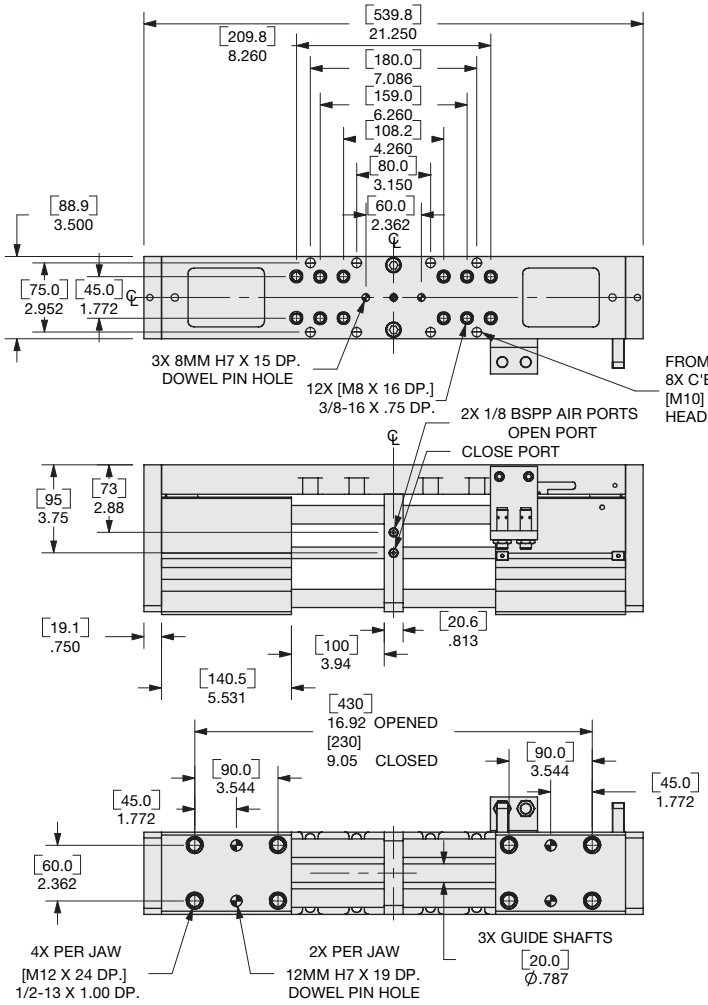
Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

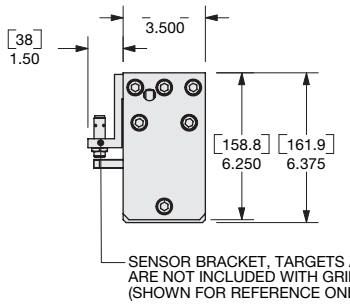
Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

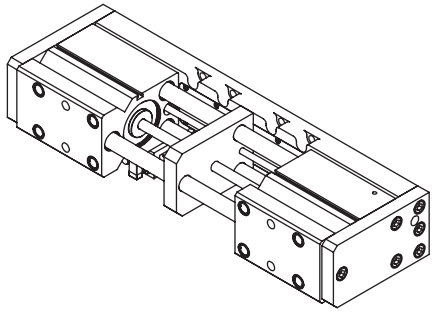
Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~300° F**	**-30°~150° C**

Maintenance Specifications	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

*Addition of lubrication will greatly increase service life

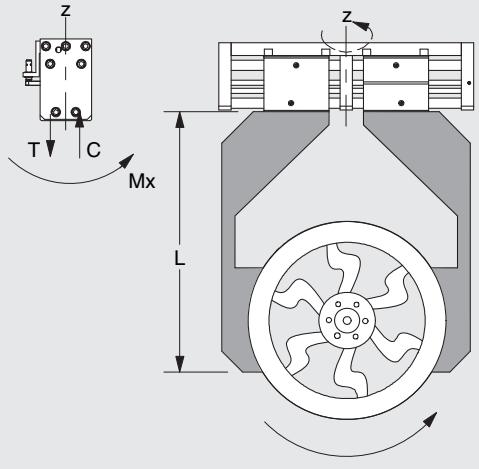






Specifications	X2041119	X2040901
Total Rated Grip Force **F** @ 100 psi, 7 bar	650 lbs.	2891 N
Stroke	7.87 in.	200 mm
Weight	35 lbs.	15.8 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	2.25 in.	57 mm
Displacement	29.71 in^3.	486.8 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation Time	1.3 sec.	1.3 sec.
Accuracy	±0.005 in.	±0.13 mm
Repeatability	±0.002 in.	±0.05 mm
Valve required to actuate double acting	4-way, 2-position	

Loading Information



Loading Capacity †	Static	
Maximum Tensile **T**	2500 lbs.	[11120 N]
Maximum Compressive **C**	2500 lbs.	[11120 N]
Maximum Moment **Mx**	5800 in.-lbs.	[655 Nm]
Maximum Moment **My**	5800 in.-lbs.	[655 Nm]
Maximum Moment **Mz**	5800 in.-lbs.	[655 Nm]
Maximum Finger Length	25 in.	[635mm]

† Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL

BASIC MODEL: **IMPERIAL** **X2041119** **METRIC** **X2040901**

OPTIONAL FEATURES: (Consult Factory)

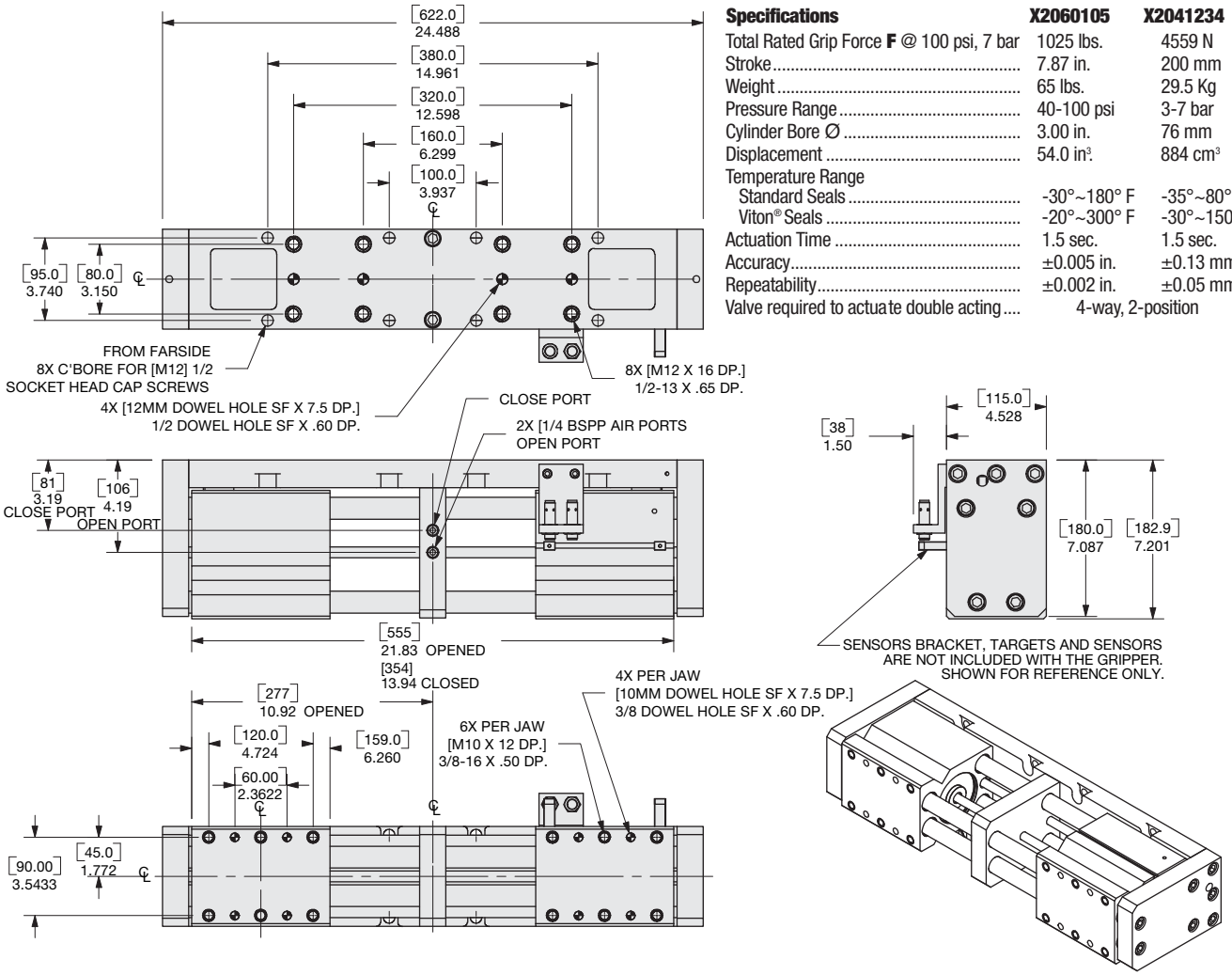
- Non-Synchronous Motion
- Viton Seals
- Stainless Steel Hardware
- Rod Lock

SENSOR ACCESSORIES	Order #	QTY/UNIT
12mm Sensor Mounting Kit (mounts 2 sensors)	X2040108	1
12mm Inductive NPN Sensor with Quick Disconnect*	OISN-017	1 or 2
12mm Inductive PNP Sensor with Quick Disconnect*	OISP-017	1 or 2
Straight Quick Disconnect Cable (2 meter cable length)*	CABL-014	1 or 2
Straight Quick Disconnect Cable (5 meter cable length)*	CABL-018	1 or 2
PNEUMATIC ACCESSORIES		
Fail Safe Valve 1/4 NPT (Imperial)	OFSV-003	1
Fail Safe Valve 1/4 BSPP (Metric)	OFSV-006	1
Plumbing Adapter 1/4 BSPP Male to 1/4 NPT Female	PLFT-025	1 or 2
Buna-N Seal Repair Kit	X2060703	1
Viton® Seal Repair Kit	X2060703S	1

*Sensor and cable sold separately

CUSTOM PRODUCTS
WHEEL HANDLING SERIES

Robohand



Specifications	X2060105	X2041234
Total Rated Grip Force **F** @ 100 psi, 7 bar	1025 lbs.	4559 N
Stroke	7.87 in.	200 mm
Weight	65 lbs.	29.5 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	3.00 in.	76 mm
Displacement	54.0 in^3.	884 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation Time	1.5 sec.	1.5 sec.
Accuracy	±0.005 in.	±0.13 mm
Repeatability	±0.002 in.	±0.05 mm
Valve required to actuate double acting	4-way, 2-position	

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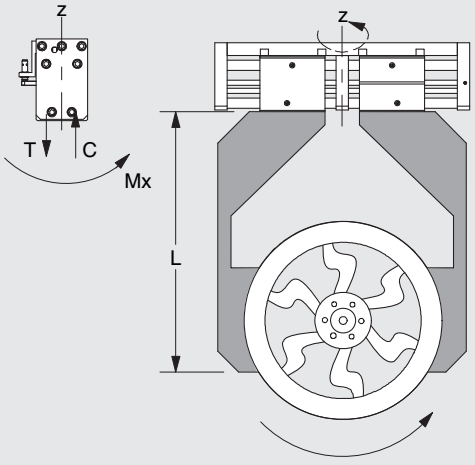


Loading Capacity †	Static	
Maximum Tensile **T**	3000 lbs.	[13344 N]
Maximum Compressive **C**	3000 lbs.	[13344 N]
Maximum Moment **Mx**	7250 in.-lbs.	[819 Nm]
Maximum Moment **My**	7250 in.-lbs.	[819 Nm]
Maximum Moment **Mz**	7250 in.-lbs.	[819 Nm]
Maximum Finger Length	36 in.	[914mm]

† Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL

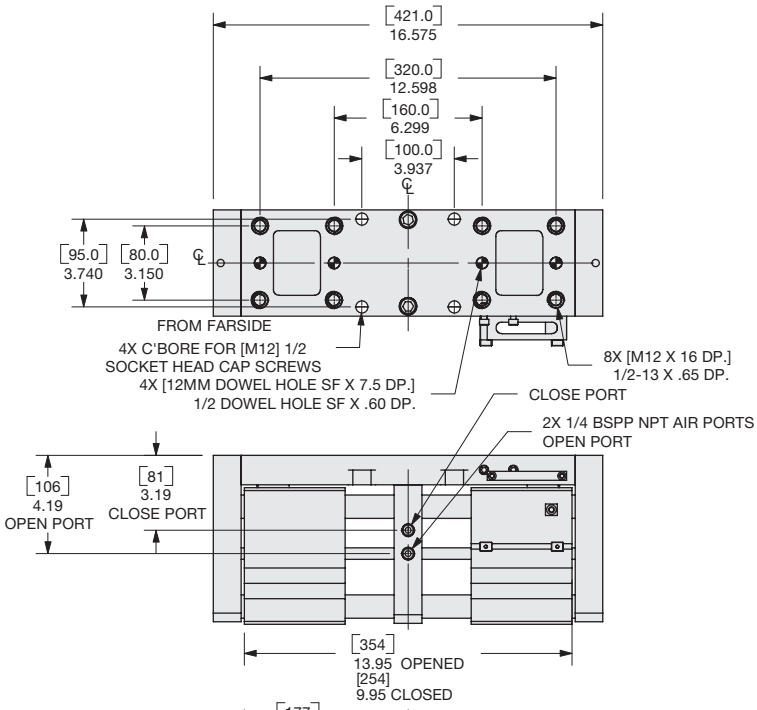
BASIC MODEL: **IMPERIAL** **X2060105** **METRIC** **X2041234**

OPTIONAL FEATURES: (Consult Factory)

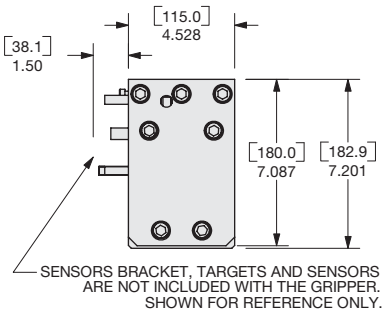
- Non-Synchronous Motion
- Viton Seals
- Stainless Steel Hardware
- Rod Lock

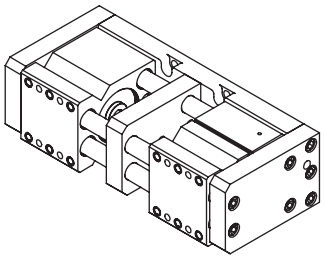
SENSOR ACCESSORIES	Order #	QTY/UNIT
12mm Sensor Mounting Kit (mounts 2 sensors)	**X2040108**	**1**
12mm Inductive NPN Sensor with Quick Disconnect*	**OISN-017**	**1 or 2**
12mm Inductive PNP Sensor with Quick Disconnect*	**OISP-017**	**1 or 2**
Straight Quick Disconnect Cable (2 meter cable length)*	**CABL-014**	**1 or 2**
Straight Quick Disconnect Cable (5 meter cable length)*	**CABL-018**	**1 or 2**
PNEUMATIC ACCESSORIES		
Fail Safe Valve 1/4 NPT (Imperial)	**OFSV-002**	**1**
Fail Safe Valve 1/4 BSPP (Metric)	**OFSV-005**	**1**
Plumbing Adapter 1/4 BSPP Male to 1/4 NPT Female	**PLFT-024**	**1 or 2**
Buna-N Seal Repair Kit	**Consult Factory**	**1**
Viton® Seal Repair Kit	**Consult Factory**	**1**

*Sensor and cable sold separately



Specifications	X2060104	X2050204
Total Rated Grip Force **F** @ 100 psi, 7 bar	1025 lbs.	4559 N
Stroke	3.93 in.	100 mm
Weight	45 lbs.	20.4 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	3.000 in.	76.2 mm
Displacement	18.84 in^3.	308.7 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation Time	1.0 sec.	1.0 sec.
Accuracy	±0.005 in.	±0.13 mm
Repeatability	±0.002 in.	±0.05 mm
Valve required to actuate double acting	4-way, 2-position	





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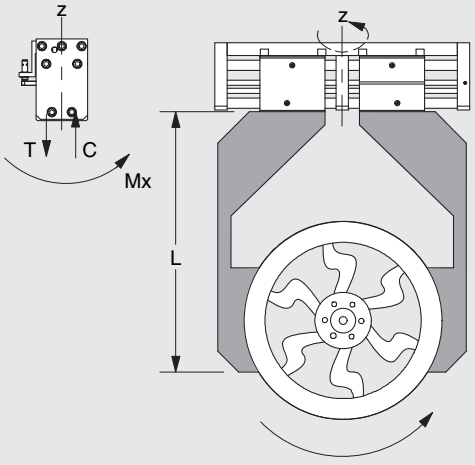


Loading Capacity †	Static	
Maximum Tensile **T**	2700 lbs.	[12010 N]
Maximum Compressive **C**	2700 lbs.	[12010 N]
Maximum Moment **Mx**	6750 in.-lbs.	[763 Nm]
Maximum Moment **My**	6750 in.-lbs.	[763 Nm]
Maximum Moment **Mz**	6750 in.-lbs.	[763 Nm]
Maximum Finger Length	32 in.	[813mm]

† Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL

BASIC MODEL: **IMPERIAL** **X2060104** **METRIC** **X2050204**

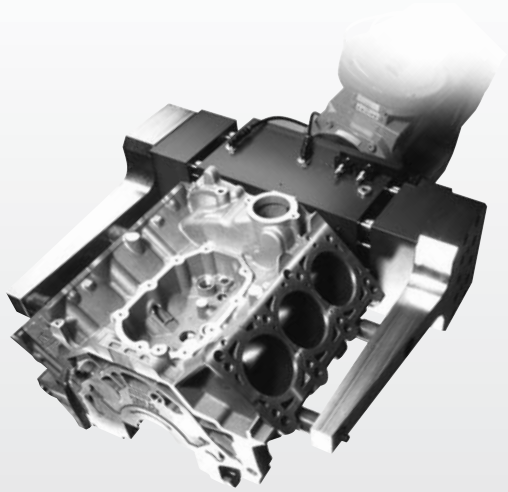
OPTIONAL FEATURES: (Consult Factory)

- Non-Synchronous Motion
- Viton Seals
- Stainless Steel Hardware
- Rod Lock

SENSOR ACCESSORIES	Order #	QTY/UNIT
12mm Sensor Mounting Kit (mounts 2 sensors)	**X2040108**	**1**
12mm Inductive NPN Sensor with Quick Disconnect*	**OISN-017**	**1 or 2**
12mm Inductive PNP Sensor with Quick Disconnect*	**OISP-017**	**1 or 2**
Straight Quick Disconnect Cable (2 meter cable length)*	**CABL-014**	**1 or 2**
Straight Quick Disconnect Cable (5 meter cable length)*	**CABL-018**	**1 or 2**
PNEUMATIC ACCESSORIES		
Fail Safe Valve 1/4 NPT (Imperial)	**OFSV-003**	**1**
Fail Safe Valve 1/4 BSPP (Metric)	**OFSV-006**	**1**
Plumbing Adapter 1/4 BSPP Male to 1/4 NPT Female	**PLFT-024**	**1 or 2**
Buna-N Seal Repair Kit	**Consult Factory**	**1**
Viton® Seal Repair Kit	**Consult Factory**	**1**

*Sensor and cable sold separately

"B-Series" Industrial Parallel



BPW - WIDE BODY SERIES

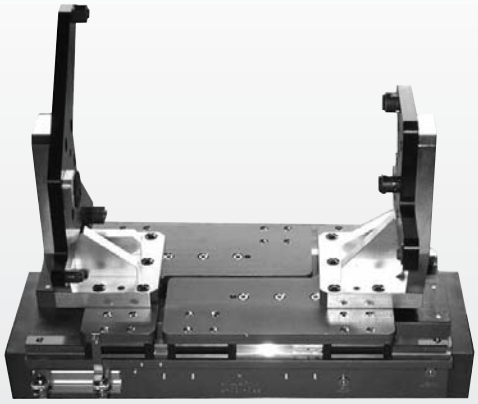
The BPW Parallel Gripper feature a wide body design ideal for handling large and wide parts using long fingers. The jaws are supported through the full length of the body for high moment carrying capacity and are sealed against chips or particles, which makes it ideal for use in machining or foundry applications.

- **For Large and Wide Parts**
- **High Grip Forces and Moment Loads**
- **Support for Long Fingers**
- **Non-synchronous Option**
- **Optional Spring Close** (BPW-1600 only)

BRP - HEAVY DUTY SERIES

The BRP Parallel Gripper are heavy duty and rugged for reliable operation in real life industrial operations. Sealed jaws protect the internal mechanism from chips and coolant in machining applications. Hardened tool steel jaws and supports allow for long tooling fingers and high moments and forces.

- **Rugged Design**
- **High Grip Forces and Moment Loads**
- **Support for Long Fingers**
- **Optional Spring Open or Close**



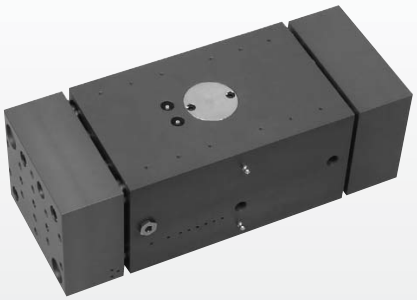
BPG - LONG STROKE SERIES

The BPG Parallel Gripper feature a long stroke and low profile and they are often used to handle different size parts with the same fingers. The jaws and supports are made of hardened tool steel and the body is made of lightweight, hard anodized aluminum.

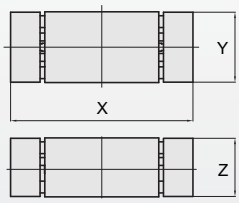
- **Accommodate Multiple Part Sizes with same Fingers**
- **Long Strokes**
- **Optional Spring Open or Close**
- **Low Profile Design**

Grippers

BPW-1600



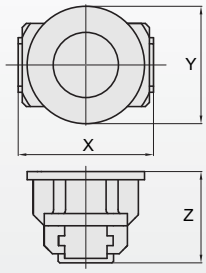
BPW-2000



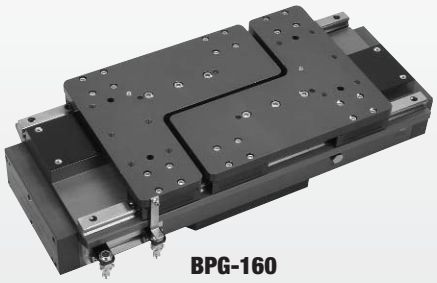
Model #	Stroke	Grip Force	Weight	X	Y	Z
BPW-1600	6.3 in [160 mm]	970 lbs [3868 N]	88 lbs [40 kg]	17.9 in [454 mm]	7.1 in [180 mm]	5.9 in [150 mm]
BPW-2000	7.8 in [200 mm]	1920 lbs [8536 N]	154 lbs [70 kg]	27 in [694 mm]	8.0 in [203 mm]	6.9 in [174 mm]

BRP-20

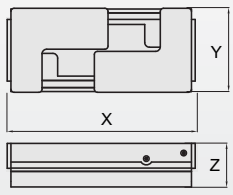
BRP-21



Model #	Stroke	Grip Force	Weight	X	Y	Z
BRP-20	1.5 in [38 mm]	1618 lbs [7200 N]	40.3 lbs [18.3 kg]	8.19 in [208 mm]	7.87 in [200 mm]	6.16 in [157 mm]
BRP-21	1.5 in [38 mm]	3462 lbs [15400 N]	81.6 lbs [37 kg]	12.13 in [308 mm]	10.63 in [270 mm]	6.69 in [170 mm]
BRP-21-D	2.5 in [64 mm]	2001 lbs [8900 N]	81.6 lbs [37 kg]	12.13 in [308 mm]	10.63 in [270 mm]	6.69 in [170 mm]



BPG-160



For Applications Support or More Info

Contact Us at:

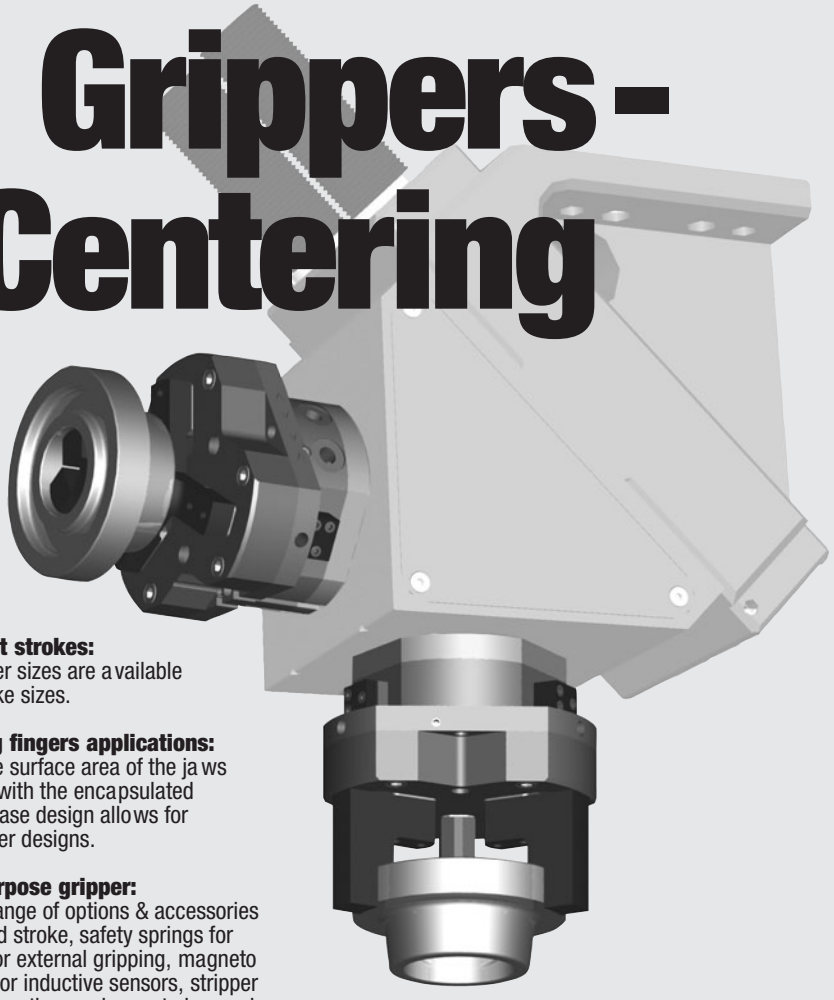
cs-automation@destaco.com

or Call Us at:

1.888.DESTACO

Model #	Stroke	Grip Force	Weight	X	Y	Z
BPG-160	4.06 in [160 mm]	1787lbs [7950 N]	126 lbs [57 kg]	23.78 in [604 mm]	10.63 in [270 mm]	5.51 in [140 mm]

Parallel Grippers - 3-Jaw Centering Series

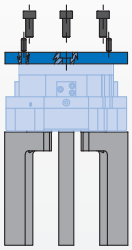


- **Machining applications:** The 3 concentric jaws and excellent repeatability make it easier to accurately load and unload round parts.
- **Harsh environments:** Shielded design repels chips and other particulate from internal drive mechanism. Viton® seals are standard.
- **Compact, robust and powerful gripper** This gripper is designed for use in confined spaces, combining long strokes with a high grip force. Optional safety springs retain the components, should the air supply fail or to increase grip force.
- **Different strokes:** All gripper sizes are available in 2 stroke sizes.
- **For long fingers applications:** The large surface area of the jaws coupled with the encapsulated bottom case design allows for long finger designs.
- **Multipurpose gripper:** A wide range of options & accessories (extended stroke, safety springs for internal or external gripping, magneto resistive or inductive sensors, stripper plate) allow these grippers to be used in a wide number of applications.

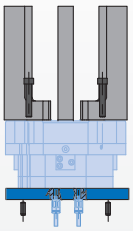
Mounting Information:

Grippers can be mounted & operated in any orientation

Gripper is located using two dowel pins and assembled from the top with 3 screws.

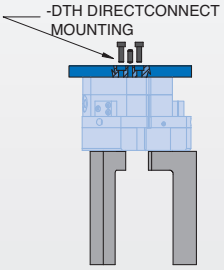


The gripper can also be assembled from the bottom with 3 through body screws.

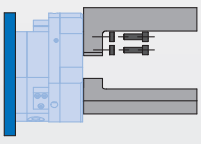


Gripper is protected from debris when operated upside down.

Gripper can be operated utilizing top manifold air ports.



Body mounts with 4 screws and locates with 2 slip fit dowel pins for accuracy



Fingers are located on jaws with 2 dowel sleeves (provided) and assembled with 2 screws.

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range without Springs	**30-100 psi**	**2-7 bar**
Cylinder Type	**Double Acting or Double Acting Spring Assist or Single Acting Spring Return**	
Dynamic Seals	**Internally Lubricated Viton®**	
Valve Required to Operate:		
Double Acting	**4-way, 2-position**	
Single Acting (**-C** or **-O** Option)	**3-way, 2-position**	
Air Quality Requirements		
Air Filtration	**40 Micron or Better**	
Air Lubrication	**Not Necessary***	
Air Humidity	**Low Moisture Content (dry)**	
Temperature Operating Range		
Buna-N Seals (Standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (Optional)	**-20°~300° F**	**-30°~150° C**
Maintenance Specifications†		
Expected Life		
Normal Application	**5 million cycles**	
w/ Preventative Maintenance	**10+ million cycles***	
Field Repairable	**Yes**	
Seal Repair Kits Available	**Yes**	

*Addition of lubrication will greatly increase service life
†See Maintenance Section

DIRECTCONNECT™

Product Features

Viton® Seals (-V) Option
Optional Viton® seals for high temperatures (-20°F to +300°F)

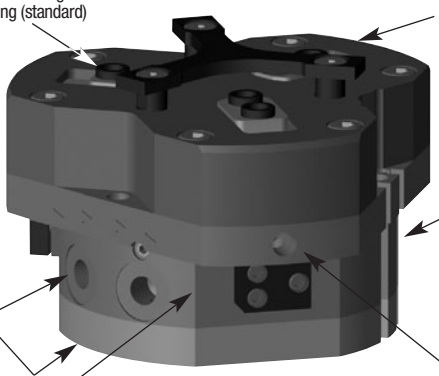
Finger Locating Sleeves
For precise finger mounting (standard)

Standard and Extended Stroke (-L)
Each model of gripper is available in two stroke lengths

Multiple Mounting Locations
Gripper can be mounted from the top or bottom

Shielded Design
Gripper body is shielded to repel chips and other particulate from internal drive mechanism

Jaw Components
Hardened and precision ground steel for minimum jaw play with hard plating for wear resistance and long life



Multiple Sensing Capabilities
Up to 3 magneto resistive sensors (magnets built-in) or inductive sensors available [except **-1**]

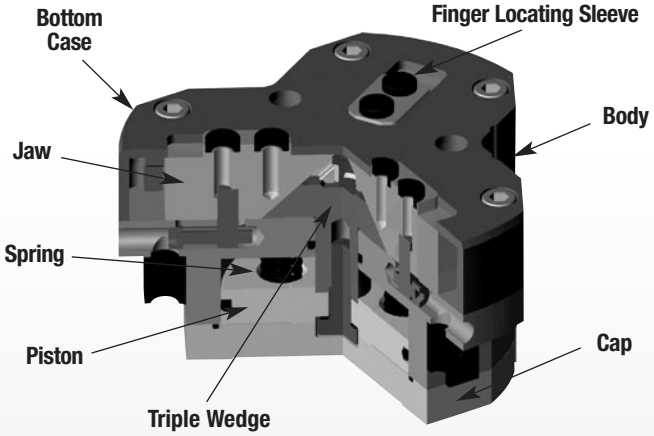
Multiple Air Ports
Side or top air ports (top ports require O-ring)

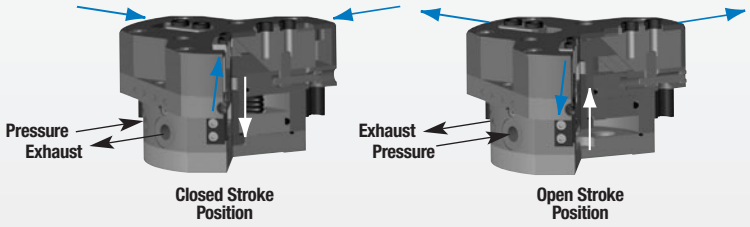
Optional Spring Assist
Optional spring assist retains the component should the air supply fail, to assist the gripper for internal (**-O**) or external (**-C**) gripping, or in single acting or spring assist mode

DIRECTCONNECT™ Mounting Patterns
DIRECTCONNECT™ tapped & dowel mounting surface available on **DTH** version [except **-6M, 7M, 8M**]

Standard Purge/ Scavenge Port
Used with a vacuum for clean room environments or positive pressure for harsh environments

Operating Principle





- A double acting piston is connected to a triple sided wedge.
- The triple wedge slides in a slot in each of the ja ws converting the vertical motion of the wedge into a horizontal motion of the ja ws.
- Each jaw moves within the slots. The design of the bottom case increases the rigidity and permits longer fingers. The large surface area of the guiding system permits higher moment loads.
- This gripper is suitable for internal or external gripping using single or double acting mode.

Style -RTH/DTH Parallel Gripper

Size -1M

	RTH/DTH-1M		RTH/DTH-1M-L	
Total Stroke:	0.16 in.	4 mm	0.32 in.	8 mm
Grip Force:	200 lbs	889 N	130 lbs	579 N
Weight:	0.6 lbs	0.25 Kg	0.6 lbs	0.25 Kg

See Page 1.210

Style -RTH/DTH Parallel Gripper

Size -2M

	RTH/DTH-2M		RTH/DTH-2M-L	
Total Stroke:	0.24 in.	6 mm	0.47 in.	12 mm
Grip Force:	335 lbs	1490 N	220 lbs	979 N
Weight:	1.2 lbs	0.53 Kg	1.2 lbs	0.53 Kg

See Page 1.212

Style -RTH/DTH Parallel Gripper

Size -3M

	RTH/DTH-3M		RTH/DTH-3M-L	
Total Stroke:	0.31 in.	8 mm	0.63 in.	16 mm
Grip Force:	591 lbs	2627 N	384 lbs	1708 N
Weight:	2.4 lbs	1.08 Kg	2.4 lbs	1.08 Kg

See Page 1.214

Style -RTH/DTH Parallel Gripper

Size -4M

	RTH/DTH-4M		RTH/DTH-4M-L	
Total Stroke:	0.39 in.	10 mm	0.79 in.	20 mm
Grip Force:	1026 lbs	4562 N	667 lbs	667 N
Weight:	4.3 lbs	1.95 Kg	4.3 lbs	1.95 Kg

See Page 1.216

Style -RTH/DTH Parallel Gripper

Size -5M

	RTH/DTH-5M		RTH/DTH-5M-L	
Total Stroke:	0.51 in.	13 mm	1.02 in.	26 mm
Grip Force:	1771 lbs	7877 N	1152 lbs	5124 N
Weight:	8.6 lbs	3.9 Kg	8.6 lbs	3.9 Kg

See Page 1.218

Style -RTH Parallel Gripper

Size -6M

	RTH-6M		RTH-6M-L	
Total Stroke:	0.63 in.	16 mm	1.26 in.	32 mm
Grip Force:	3099 lbs	13786 N	2017 lbs	8971 N
Weight:	17.4 lbs	7.9 Kg	17.4 lbs	7.9 Kg

See Page 1.220

Style -RTH Parallel Gripper

Size -7M

	RTH-7M		RTH-M-L	
Total Stroke:	0.98 in.	25 mm	1.97 in.	50 mm
Grip Force:	4967 lbs	22093 N	3222 lbs	14322 N
Weight:	34.6 lbs	15.7 Kg	34.6 lbs	15.7 Kg

See Page 1.222

Style -RTH Parallel Gripper

Size -8M

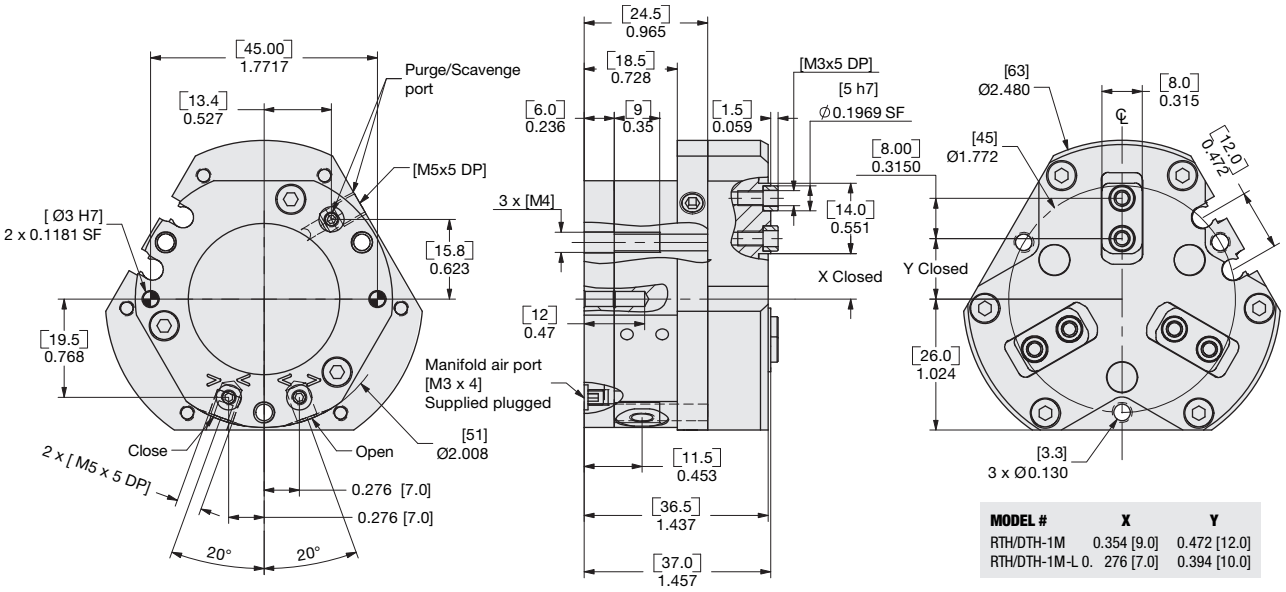
	RTH-8M		RTH-8M-L	
Total Stroke:	1.38 in.	35 mm	2.76 in.	70 mm
Grip Force:	9971 lbs	44354 N	6450 lbs	28690 N
Weight:	96.8 lbs	43.9 Kg	96.8 lbs	43.9 Kg

See Page 1.224

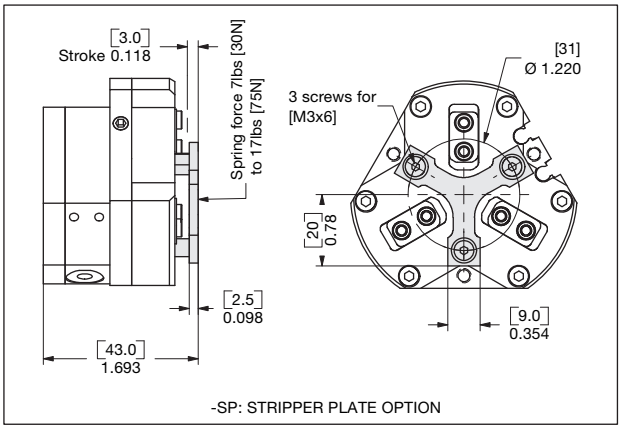
DIRECTCONNECT™

PARALLEL GRIPPER RTH/DTH-1M
3-JAW CENTERING SERIES

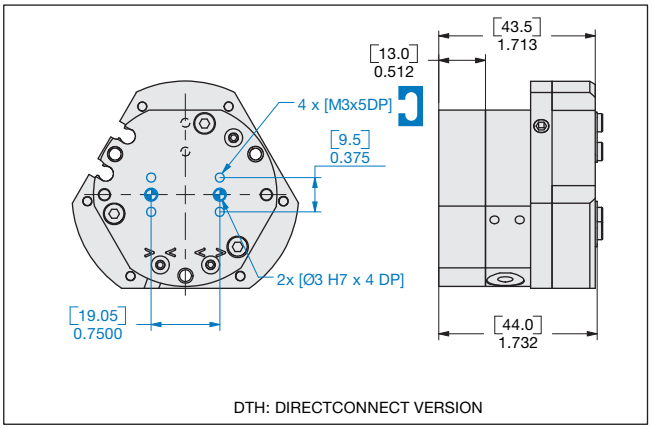
Robohand



MODEL #	X	Y
RTH/DTH-1M	0.354 [9.0]	0.472 [12.0]
RTH/DTH-1M-L	0. 276 [7.0]	0.394 [10.0]



-SP: STRIPPER PLATE OPTION



DTH: DIRECTCONNECT VERSION

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SIZE | METRIC | SPRING ASSIST

[ ]-1 M-[L]-[ ]-[SP]-[V]

EXTENDED STROKE | STRIPPER PLATE

BASIC MODEL	**RTH**	Without DIRECTCONNECT Mounting Pattern
	DTH	With DIRECTCONNECT Mounting Pattern
SIZE	**1**	
METRIC	**M**	
EXTENDED STROKE	**__**	0.16" [4mm] Leave Blank (standard)
	L	0.32" [8mm]
SPRING	**C**	Spring Closed
	O	Spring Open
	__	Leave Blank. No Spring Option (standard)
STRIPPER PLATE	**SP**	
VITON® SEALS	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DTH-1M-L-C-SP-V

Ex: DTH-1M DIRECTCONNECT Gripper, Metric, 8mm Extended Stroke, Spring Closed, Stripper Plate, Viton® Seals

SENSOR ACCESSORIES*

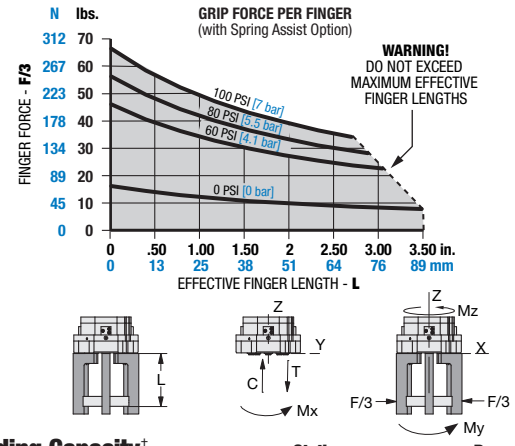
PNP Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSN-017**	**1 or 2**
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disc*	**OHSP-011**	**1 or 2**
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disc*	**OHSN-011**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**

PNEUMATIC ACCESSORIES

Buna-N Seal Repair Kit	**SLKT-347**	**1**
Buna-N Rear Inlet Seal Repair Kit	**SLKT-363**	**1**
Viton® Seal Repair Kit	**SLKT-347V**	**1**
Viton® Rear Inlet Seal Repair Kit	**SLKT-363V**	**1**
M5 Adjustable Flow Control	**VLVF-008**	**1 or 2**

*Sensor and cable sold separately.

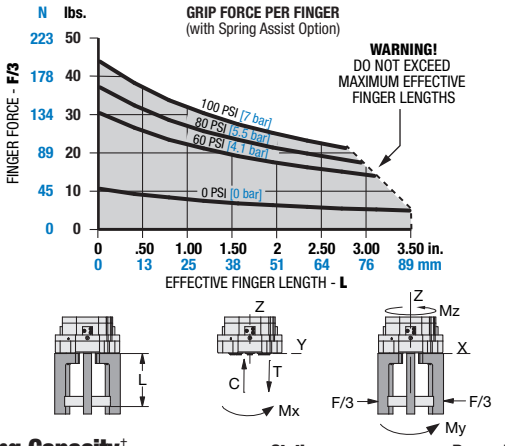
RTH/DTH-1M Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	182 lbs. [810 N]	20 lbs. [89 N]
Maximum Compressive **C**	238 lbs. [1060 N]	20 lbs. [89 N]
Maximum Moment $\mathbf{M_X}$	195 in.-lbs. [22 Nm]	18 in.-lbs. [2 Nm]
Maximum Moment $\mathbf{M_Y}$	248 in.-lbs. [28 Nm]	27 in.-lbs. [3 Nm]
Maximum Moment $\mathbf{M_Z}$	159 in.-lbs. [18 Nm]	27 in.-lbs. [3 Nm]

†Capacities are per set of jaws and are not simultaneous

RTH/DTH-1M-L Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	164 lbs. [730 N]	13 lbs. [57 N]
Maximum Compressive **C**	216 lbs. [960 N]	13 lbs. [57 N]
Maximum Moment $\mathbf{M_X}$	177 in.-lbs. [20 Nm]	9 in.-lbs. [1 Nm]
Maximum Moment $\mathbf{M_Y}$	204 in.-lbs. [23 Nm]	9 in.-lbs. [1 Nm]
Maximum Moment $\mathbf{M_Z}$	133 in.-lbs. [15 Nm]	9 in.-lbs. [1 Nm]

†Capacities are per set of jaws and are not simultaneous

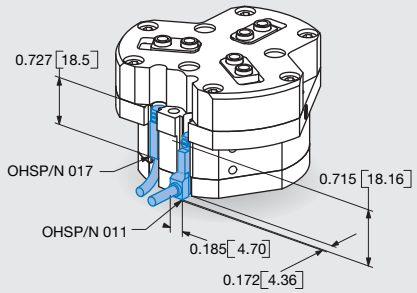
Specifications

Total Rated Grip Force, **F** @ 100 psi [7 bar]:		
Without Spring Assist	153 lbs.	682 N
Without Spring Assist **-L**	100 lbs.	443 N
With Spring Assist	200 lbs.	889 N
With Spring Assist **-L**	130 lbs.	579 N
Total Stroke:		
Standard	0.16 in.	4 mm
Extended **-L**	0.32 in.	8 mm
Weight	0.6 lbs.	0.25 Kg
Pressure Range without Spring	30-100 psi	2-7 Bar
Pressure Range with Spring	60-100 psi	4-7 Bar

Specifications (cont.)

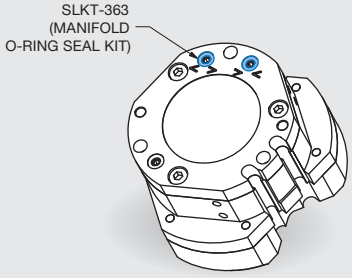
Max. Vacuum for Scavenge Port	8 in. Hg	20 mm Hg
Max. Pressure for Purge Port	30 psi	2.1 Bar
Cylinder Bore Ø	1.62 in.	32 mm
Displacement	0.40 in^3.	6.5 cm^3
Temperature Range	-20°~300° F	-30°~150° C
Actuation (open/close)	0.06 sec./0.06 sec.	
Accuracy	±0.002 in.	±0.04 mm
Repeatability	±0.001 in.	±0.02 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Accessory Mounting Technical Data



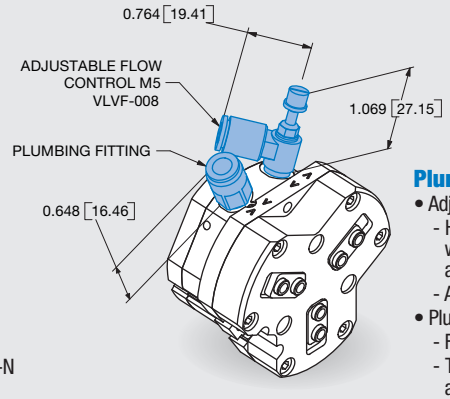
Magneto Resistive Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



Manifold O-Ring seals

- Used to seal top air ports and purge/scavenge port
- No C'bore holes in customer's mounting plate required (C'bore are machined in the gripper's body)
- Seals in manifold kit are Buna-N (Viton® seal kit SLKT-363V)

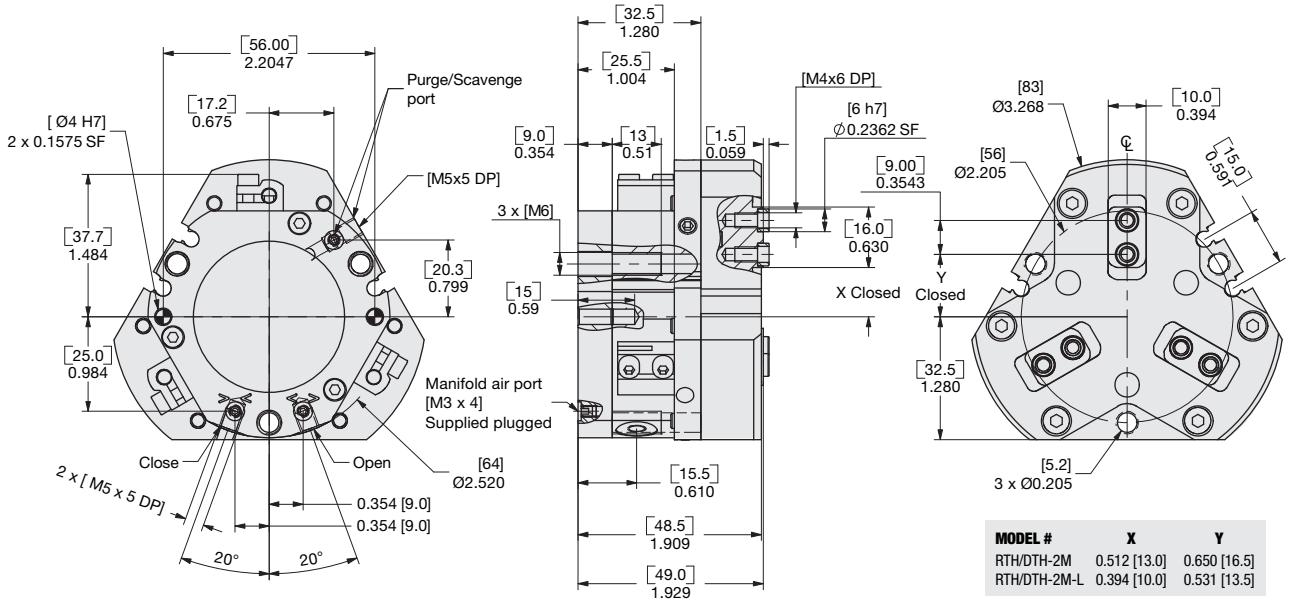


Plumbing Fittings

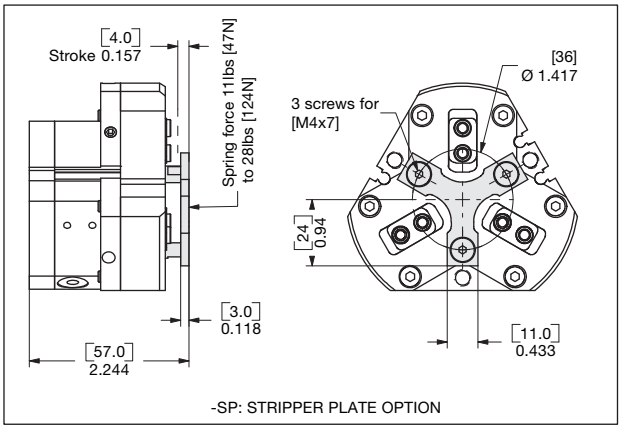
- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
  - For side air port location
  - Top air port are plugged as standard

DIRECTCONNECT™

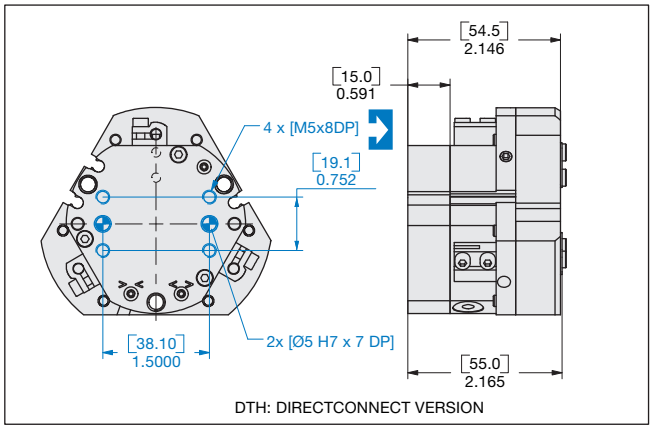
PARALLEL GRIPPER RTH/DTH-2M
3-JAW CENTERING SERIES



MODEL #	X	Y
RTH/DTH-2M	0.512 [13.0]	0.650 [16.5]
RTH/DTH-2M-L	0.394 [10.0]	0.531 [13.5]



-SP: STRIPPER PLATE OPTION



DTH: DIRECTCONNECT VERSION

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SIZE | METRIC | SPRING ASSIST | EXTENDED STROKE | STRIPPER PLATE

[ ]-2-M-[ ]-[ ]-[ ]-SP-V

BASIC MODEL	**RTH**	Without DIRECTCONNECT Mounting Pattern
	DTH	With DIRECTCONNECT Mounting Pattern
SIZE	**2**	
METRIC	**M**	
EXTENDED STROKE	**__**	0.24" [6mm] Leave Blank (standard)
	L	0.47" [12mm]
SPRING	**C**	Spring Closed
	O	Spring Open
	__	Leave Blank. No Spring Option (standard)
STRIPPER PLATE	**SP**	
VITON® SEALS	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DTH-2M-L-C-SP-V

Ex: DTH-2M DIRECTCONNECT Gripper, Metric, 12mm Extended Stroke, Spring Closed, Stripper Plate, Viton® Seals

SENSOR ACCESSORIES*

4mm NPN Inductive Sensor w/Quick Disconnect*	**OISN-014**	**1, 2 or 3**
4mm PNP Inductive Sensor w/Quick Disconnect*	**OISP-014**	**1, 2 or 3**
PNP Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSP-017**	**1, 2 or 3**
NPN Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSN-017**	**1, 2 or 3**
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disc*	**OHSP-011**	**1, 2 or 3**
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disc*	**OHSN-011**	**1, 2 or 3**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1, 2 or 3**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1, 2 or 3**

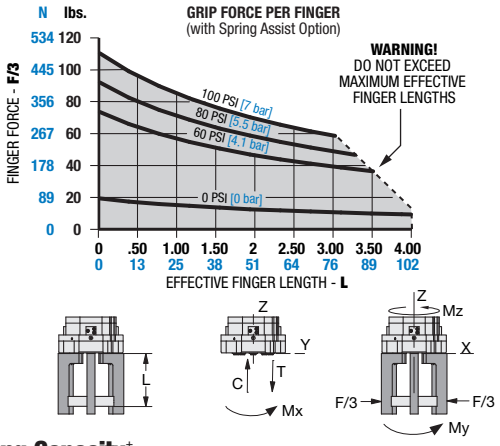
PNEUMATIC ACCESSORIES

Buna-N Seal Repair Kit	**SLKT-348**	**1**
Buna-N Rear Inlet Seal Repair Kit	**SLKT-363**	**1**
Viton® Seal Repair Kit	**SLKT-348V**	**1**
Viton® Rear Inlet Seal Repair Kit	**SLKT-363V**	**1**
M5 Adjustable Flow Control	**VLVF-008**	**1 or 2**

*Sensor and cable sold separately.

DIRECTCONNECT™

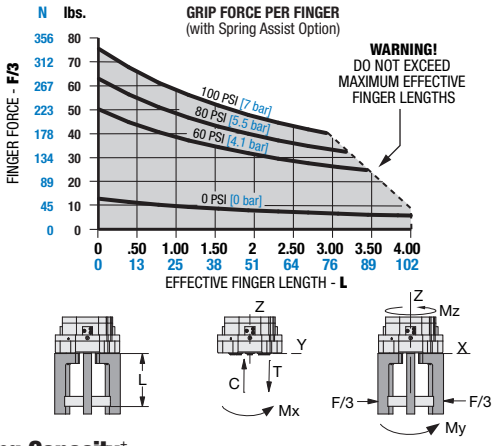
RTH/DTH-2M Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	270 lbs. [1200 N]	29 lbs. [129 N]
Maximum Compressive **C**	351 lbs. [1560 N]	29 lbs. [129 N]
Maximum Moment **Mx**	398 in.-lbs. [45 Nm]	35 in.-lbs. [4 Nm]
Maximum Moment **My**	566 in.-lbs. [64 Nm]	53 in.-lbs. [6 Nm]
Maximum Moment **Mz**	363 in.-lbs. [41 Nm]	53 in.-lbs. [6 Nm]

†Capacities are per set of jaws and are not simultaneous

RTH/DTH-2M-L Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	243 lbs. [1080 N]	19 lbs. [84 N]
Maximum Compressive **C**	315 lbs. [1400 N]	19 lbs. [84 N]
Maximum Moment **Mx**	354 in.-lbs. [40 Nm]	27 in.-lbs. [3 Nm]
Maximum Moment **My**	460 in.-lbs. [52 Nm]	35 in.-lbs. [4 Nm]
Maximum Moment **Mz**	292 in.-lbs. [33 Nm]	35 in.-lbs. [4 Nm]

†Capacities are per set of jaws and are not simultaneous

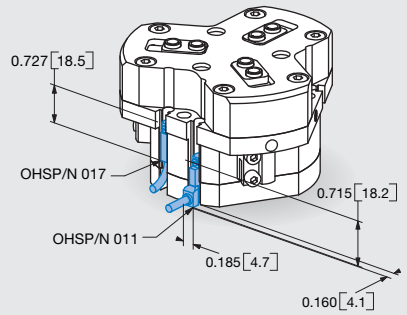
Specifications

Total Rated Grip Force, **F** @ 100 psi [7 bar]:		
Without Spring Assist	278 lbs.	1238 N
Without Spring Assist **-L**	183 lbs.	812 N
With Spring Assist	335 lbs.	1490 N
With Spring Assist **-L**	220 lbs.	979 N
Total Stroke:		
Standard	0.24 in.	6 mm
Extended **-L**	0.47 in.	12 mm
Weight	1.2 lbs.	0.53 Kg
Pressure Range without Spring	30-100 psi	2-7 Bar
Pressure Range with Spring	60-100 psi	4-7 Bar

Specifications (cont.)

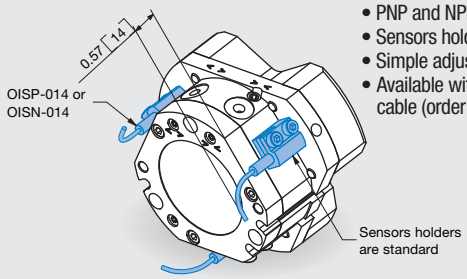
Max. Vacuum for Scavenge Port	8 in. Hg	20 mm Hg
Max. Pressure for Purge Port	30 psi	2.1 Bar
Cylinder Bore Ø	1.70 in.	43 mm
Displacement	1.05 in^3.	17 cm^3
Temperature Range	-20°~300° F	-30°~150° C
Actuation (open/close)	0.07 sec./0.07 sec.	
Accuracy	±0.002 in.	±0.04 mm
Repeatability	±0.001 in.	±0.02 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Accessory Mounting Technical Data



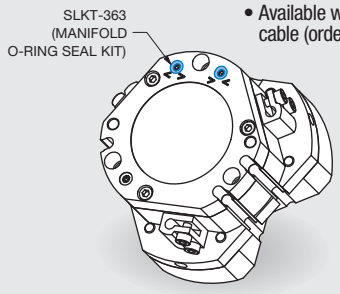
Magneto Resistive Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



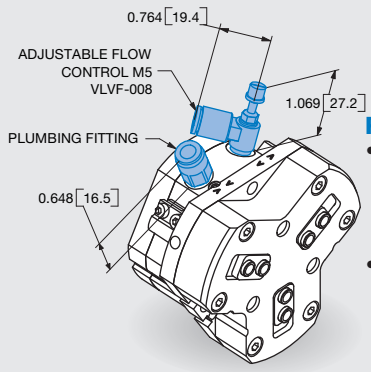
Inductive Sensors

- PNP and NPN Magneto Resistive available
- Sensors holders and targets are standard mounted
- Simple adjustment of the target with screw driver
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



Manifold O-Ring seals

- Used to seal top air ports and purge/scavenge port
- No C'bore holes in customer's mounting plate required (C'bore are machined in the gripper's body)
- Seals in manifold kit are Buna-N (Viton® seal kit SLKT-363V)



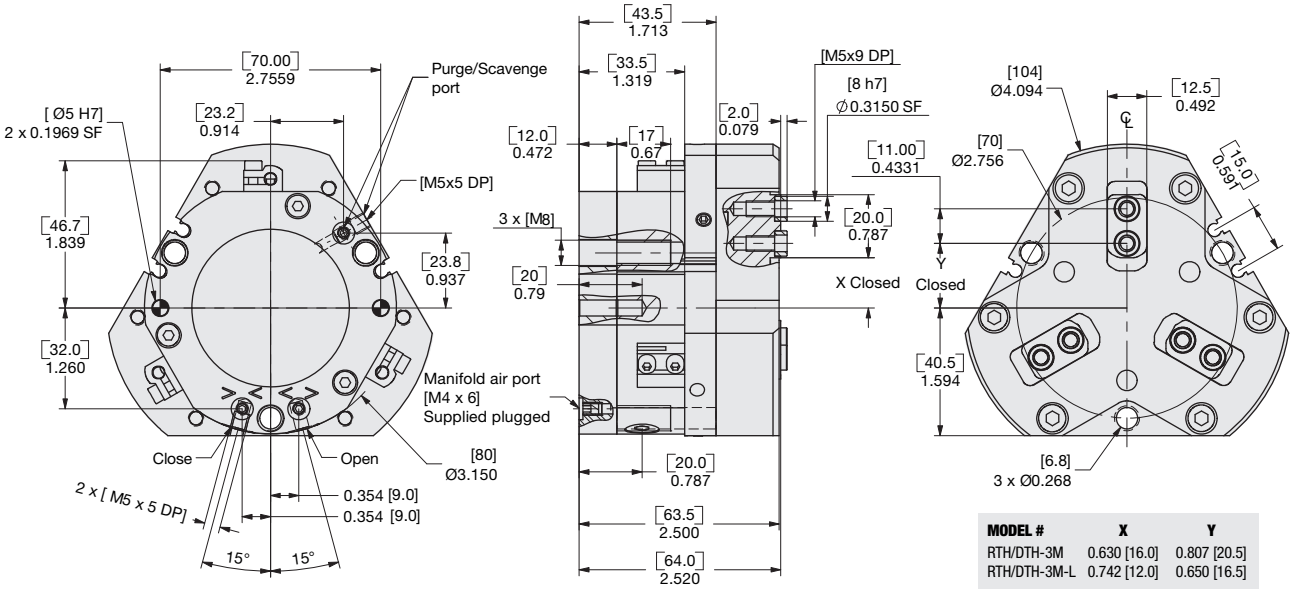
Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
  - For side air port location
  - Top air port are plugged as standard

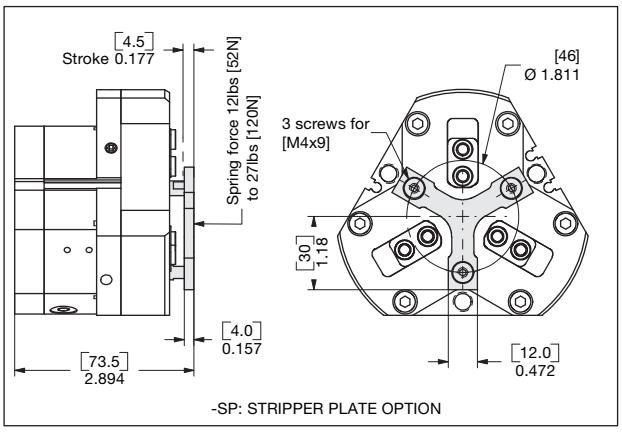
DIRECT CONNECT™

PARALLEL GRIPPER RTH/DTH-3M
3-JAW CENTERING SERIES

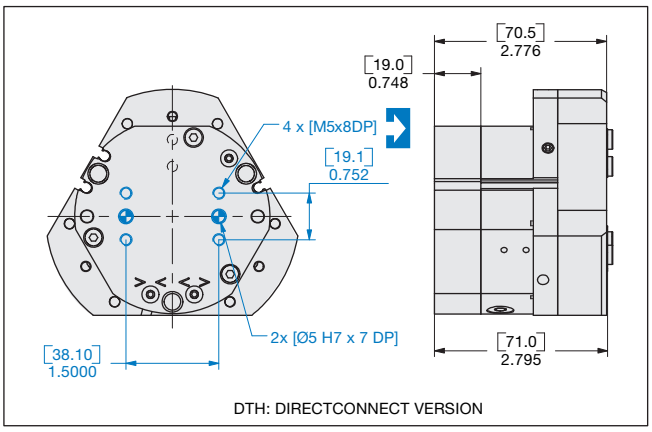
Robohand



MODEL #	X	Y
RTH/DTH-3M	0.630 [16.0]	0.807 [20.5]
RTH/DTH-3M-L	0.742 [12.0]	0.650 [16.5]



-SP: STRIPPER PLATE OPTION



DTH: DIRECTCONNECT VERSION

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SIZE | METRIC | SPRING ASSIST

[ ]-3M-[L]-[ ]-[SP]-[V]

EXTENDED STROKE | STRIPPER PLATE

BASIC MODEL	**RTH**	Without DIRECTCONNECT Mounting Pattern
	DTH	With DIRECTCONNECT Mounting Pattern
SIZE	**3**	
METRIC	**M**	
EXTENDED STROKE	**__**	0.31" [8mm] Leave Blank (standard)
	L	0.63" [16mm]
SPRING	**C**	Spring Closed
	O	Spring Open
	__	Leave Blank. No Spring Option (standard)
STRIPPER PLATE	**SP**	
VITON® SEALS	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DTH-3M-L-C-SP-V

Ex: DTH-3M DIRECTCONNECT Gripper, Metric, 16mm Extended Stroke, Spring Closed, Stripper Plate, Viton® Seals

SENSOR ACCESSORIES*

4mm NPN Inductive Sensor w/Quick Disconnect*	**OISN-014**	**1, 2 or 3**
4mm PNP Inductive Sensor w/Quick Disconnect*	**OISP-014**	**1, 2 or 3**
PNP Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSP-017**	**1, 2 or 3**
NPN Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSN-017**	**1, 2 or 3**
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disc*	**OHSP-011**	**1, 2 or 3**
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disc*	**OHSN-011**	**1, 2 or 3**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1, 2 or 3**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1, 2 or 3**

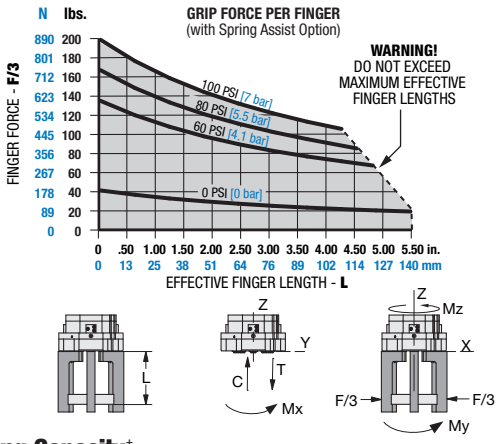
PNEUMATIC ACCESSORIES

Buna-N Seal Repair Kit	**SLKT-349**	**1**
Buna-N Rear Inlet Seal Repair Kit	**SLKT-364**	**1**
Viton® Seal Repair Kit	**SLKT-349V**	**1**
Viton® Rear Inlet Seal Repair Kit	**SLKT-364V**	**1**
M5 Adjustable Flow Control	**VLVF-008**	**1 or 2**

*Sensor and cable sold separately.

DIRECTCONNECT™

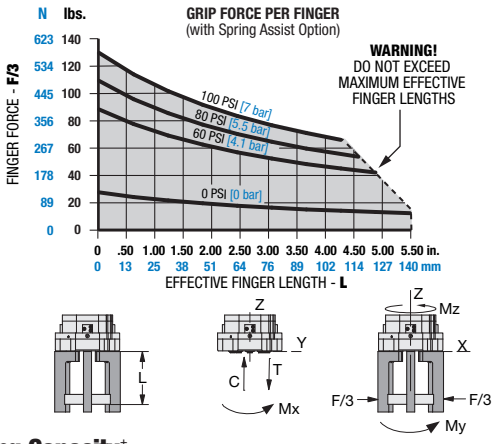
RTH/DTH-3M Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	378 lbs. [1680 N]	68 lbs. [302 N]
Maximum Compressive **C**	490 lbs. [2180 N]	68 lbs. [302 N]
Maximum Moment **Mx**	637 in.-lbs. [72 Nm]	97 in.-lbs. [11 Nm]
Maximum Moment **My**	903 in.-lbs. [102 Nm]	142 in.-lbs. [16 Nm]
Maximum Moment **Mz**	584 in.-lbs. [66 Nm]	142 in.-lbs. [16 Nm]

†Capacities are per set of jaws and are not simultaneous

RTH/DTH-3M-L Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	337 lbs. [1500 N]	44 lbs. [197 N]
Maximum Compressive **C**	436 lbs. [1940 N]	44 lbs. [197 N]
Maximum Moment **Mx**	566 in.-lbs. [64 Nm]	62 in.-lbs. [7 Nm]
Maximum Moment **My**	717 in.-lbs. [81 Nm]	80 in.-lbs. [9 Nm]
Maximum Moment **Mz**	469 in.-lbs. [53 Nm]	80 in.-lbs. [9 Nm]

†Capacities are per set of jaws and are not simultaneous

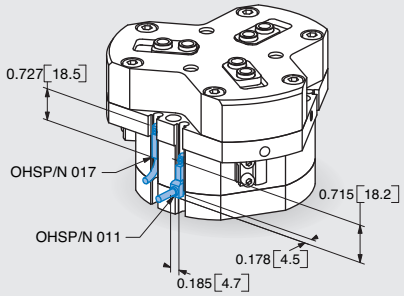
Specifications

Total Rated Grip Force, **F** @ 100 psi [7 bar]:		
Without Spring Assist	467 lbs.	2078 N
Without Spring Assist **-L**	303 lbs.	1349 N
With Spring Assist	591 lbs.	2627 N
With Spring Assist **-L**	384 lbs.	1708 N
Total Stroke:		
Standard	0.31 in.	8 mm
Extended **-L**	0.63 in.	16 mm
Weight	2.4 lbs.	1.08 Kg
Pressure Range without Spring	30-100 psi	2-7 Bar
Pressure Range with Spring	50-100 psi	3.5-7 Bar

Specifications (cont.)

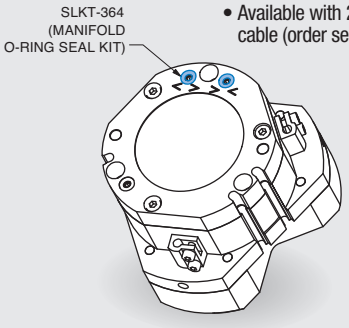
Max. Vacuum for Scavenge Port	8 in. Hg	20 mm Hg
Max. Pressure for Purge Port	30 psi	2.1 Bar
Cylinder Bore Ø	2.17 in.	55 mm
Displacement	2.30 in^3.	37 cm^3
Temperature Range	-20°~300° F	-30°~150° C
Actuation (open/close)	0.08 sec./0.08 sec.	
Accuracy	±0.002 in.	±0.04 mm
Repeatability	±0.001 in.	±0.02 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Accessory Mounting Technical Data



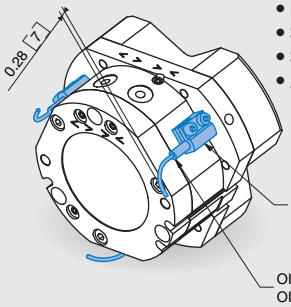
Magneto Resistive Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



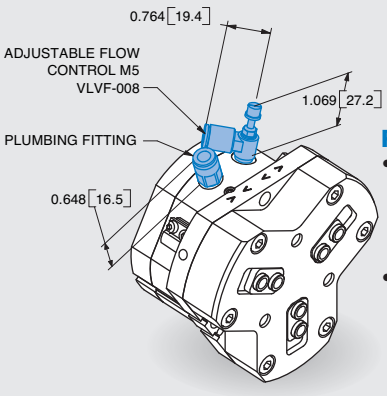
Manifold O-Ring seals

- Used to seal top air ports and purge/scavenge port
- No C'bore holes in customer's mounting plate required (C'bore are machined in the gripper's body)
- Seals in manifold kit are Buna-N (Viton® seal kit SLKT-364V)



Inductive Sensors

- PNP and NPN Magneto Resistive available
- Sensors holders and targets are standard mounted
- Simple adjustment of the target with screw driver
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



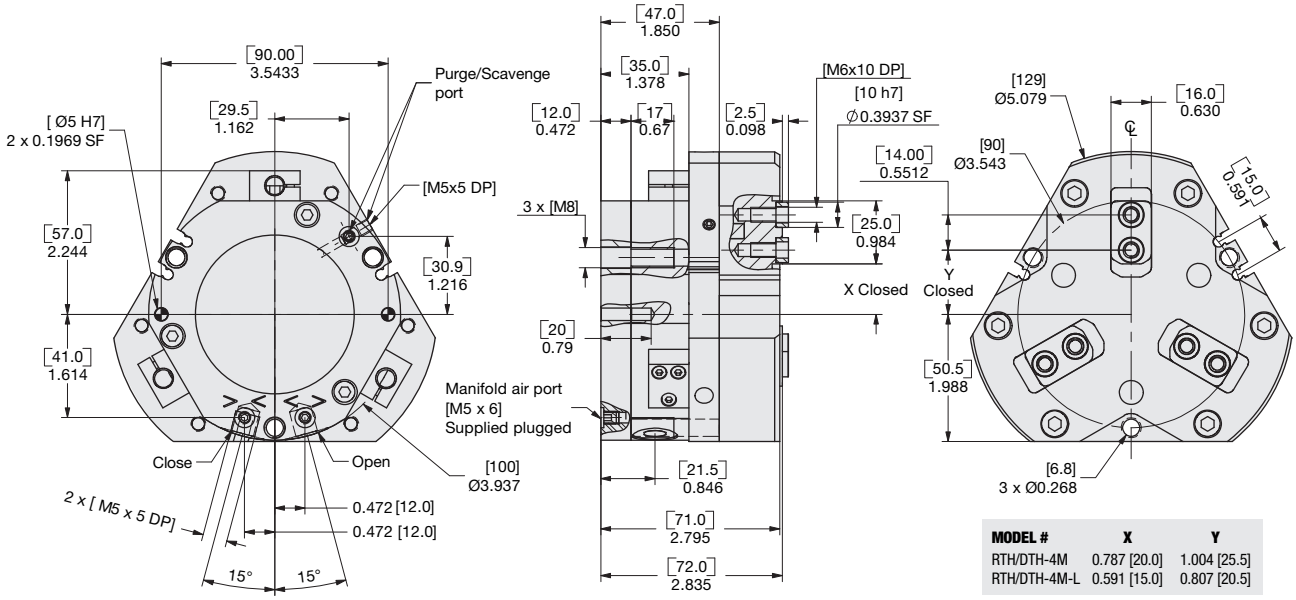
Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
  - For side air port location
  - Top air port are plugged as standard

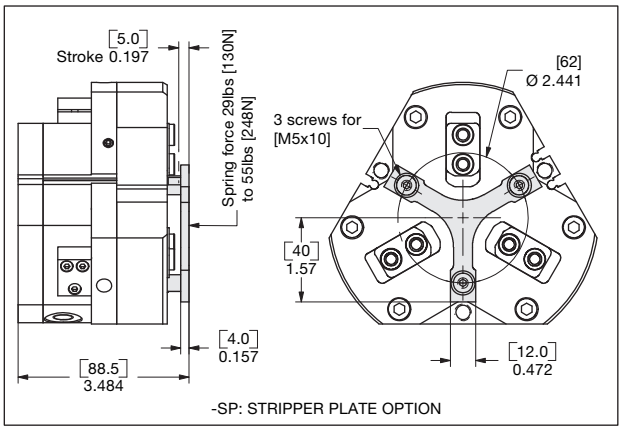
DIRECT CONNECT™

PARALLEL GRIPPER RTH/DTH-4M
3-JAW CENTERING SERIES

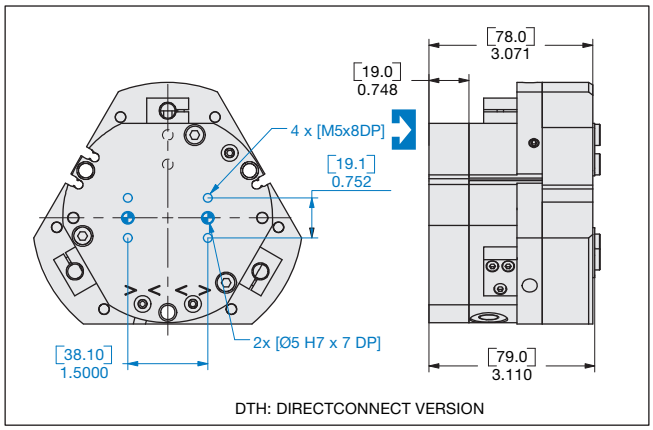
Robohand



MODEL #	X	Y
RTH/DTH-4M	0.787 [20.0]	1.004 [25.5]
RTH/DTH-4M-L	0.591 [15.0]	0.807 [20.5]



-SP: STRIPPER PLATE OPTION



DTH: DIRECTCONNECT VERSION

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SIZE | METRIC | SPRING ASSIST

[ ] - 4 M - L - [ ] - SP - V

EXTENDED STROKE | STRIPPER PLATE

BASIC MODEL	**RTH**	Without DIRECTCONNECT Mounting Pattern
	DTH	With DIRECTCONNECT Mounting Pattern
SIZE	**4**	
METRIC	**M**	
EXTENDED STROKE	**__**	0.39" [10mm] Leave Blank (standard)
	L	0.79" [20mm]
SPRING	**C**	Spring Closed
	O	Spring Open
	__	Leave Blank. No Spring Option (standard)
STRIPPER PLATE	**SP**	
VITON® SEALS	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DTH-4M-L-C-SP-V

Ex: DTH-4M DIRECTCONNECT Gripper, Metric, 20mm Extended Stroke, Spring Closed, Stripper Plate, Viton® Seals

SENSOR ACCESSORIES*

8mm NPN Inductive Sensor w/Quick Disconnect*	**OISN-011**	**1, 2 or 3**
8mm PNP Inductive Sensor w/Quick Disconnect*	**OISP-011**	**1, 2 or 3**
PNP Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSP-017**	**1, 2 or 3**
NPN Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSN-017**	**1, 2 or 3**
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disc*	**OHSP-011**	**1, 2 or 3**
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disc*	**OHSN-011**	**1, 2 or 3**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1, 2 or 3**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1, 2 or 3**

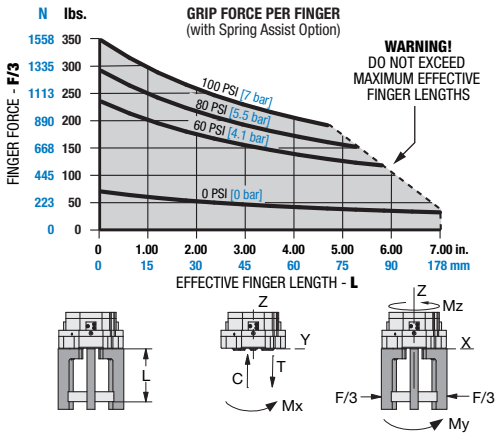
PNEUMATIC ACCESSORIES

Buna-N Seal Repair Kit	**SLKT-350**	**1**
Buna-N Rear Inlet Seal Repair Kit	**SLKT-365**	**1**
Viton® Seal Repair Kit	**SLKT-350V**	**1**
Viton® Rear Inlet Seal Repair Kit	**SLKT-365V**	**1**
G 1/8" Adjustable Flow Control	**VLVF-005**	**1 or 2**
Adapter G 1/8 Male to 1/8 NPT Female	**PLFT-025**	**1 or 2**

*Sensor and cable sold separately.

DIRECTCONNECT™

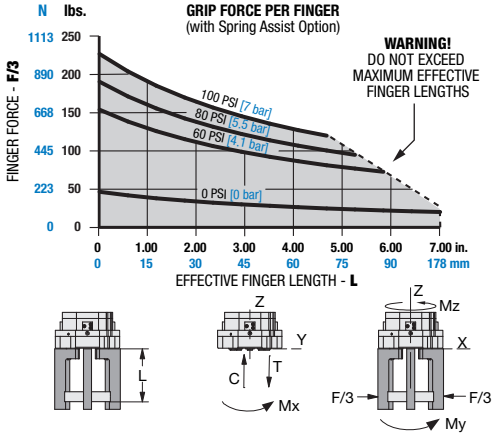
RTH/DTH-4M Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	474 lbs. [2110 N]	96 lbs. [425 N]
Maximum Compressive **C**	627 lbs. [2790 N]	96 lbs. [425 N]
Maximum Moment **Mx**	814 in.-lbs. [92 Nm]	142 in.-lbs. [16 Nm]
Maximum Moment **My**	1133 in.-lbs. [182 Nm]	195 in.-lbs. [22 Nm]
Maximum Moment **Mz**	734 in.-lbs. [84 Nm]	195 in.-lbs. [22 Nm]

†Capacities are per set of jaws and are not simultaneous

RTH/DTH-4M-L Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	423 lbs. [1880 N]	62 lbs. [275 N]
Maximum Compressive **C**	560 lbs. [2490 N]	62 lbs. [275 N]
Maximum Moment **Mx**	726 in.-lbs. [82 Nm]	89 in.-lbs. [10 Nm]
Maximum Moment **My**	903 in.-lbs. [102 Nm]	115 in.-lbs. [13 Nm]
Maximum Moment **Mz**	593 in.-lbs. [67 Nm]	115 in.-lbs. [13 Nm]

†Capacities are per set of jaws and are not simultaneous

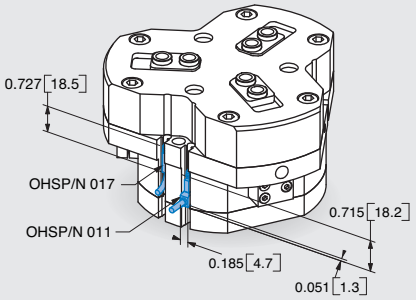
Specifications

Total Rated Grip Force, **F** @ 100 psi [7 bar]:		
Without Spring Assist	819 lbs.	3644 N
Without Spring Assist **-L**	532 lbs.	2366 N
With Spring Assist	1026 lbs.	4562 N
With Spring Assist **-L**	667 lbs.	2967 N
Total Stroke:		
Standard	0.39 in.	10 mm
Extended **-L**	0.79 in.	20 mm
Weight	4.3 lbs.	1.95 Kg
Pressure Range without Spring	30-100 psi	2-7 Bar
Pressure Range with Spring	45-100 psi	3-7 Bar

Specifications (cont.)

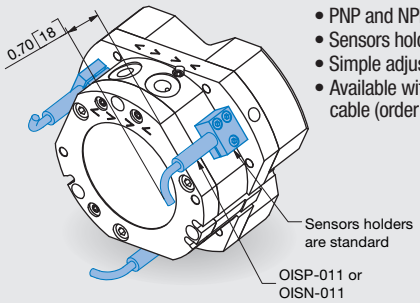
Max. Vacuum for Scavenge Port	8 in. Hg	20 mm Hg
Max. Pressure for Purge Port	30 psi	2.1 Bar
Cylinder Bore Ø	2.85 in.	72 mm
Displacement	4.90 in³.	80 cm³
Temperature Range	-20°~300° F	-30°~150° C
Actuation (open/close)	0.1 sec./0.1 sec.	
Accuracy	±0.0024 in.	±0.06 mm
Repeatability	±0.0012 in.	±0.03 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Accessory Mounting Technical Data



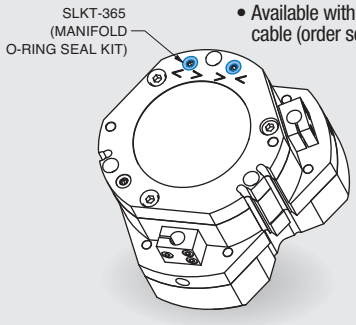
Magneto Resistive Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



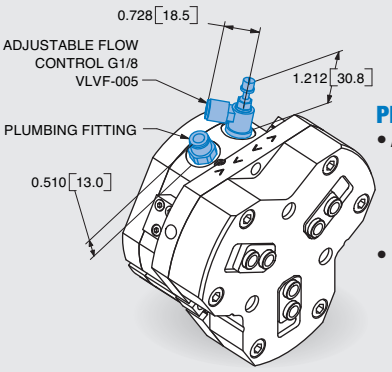
Inductive Sensors

- PNP and NPN Magneto Resistive available
- Sensors holders and targets are standard mounted
- Simple adjustment of the target with screw driver
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



Manifold O-Ring seals

- Used to seal top air ports and purge/scavenge port
- No C'bore holes in customer's mounting plate required (C'bore are machined in the gripper's body)
- Seals in manifold kit are Buna-N (Viton® seal kit SLKT-365V)



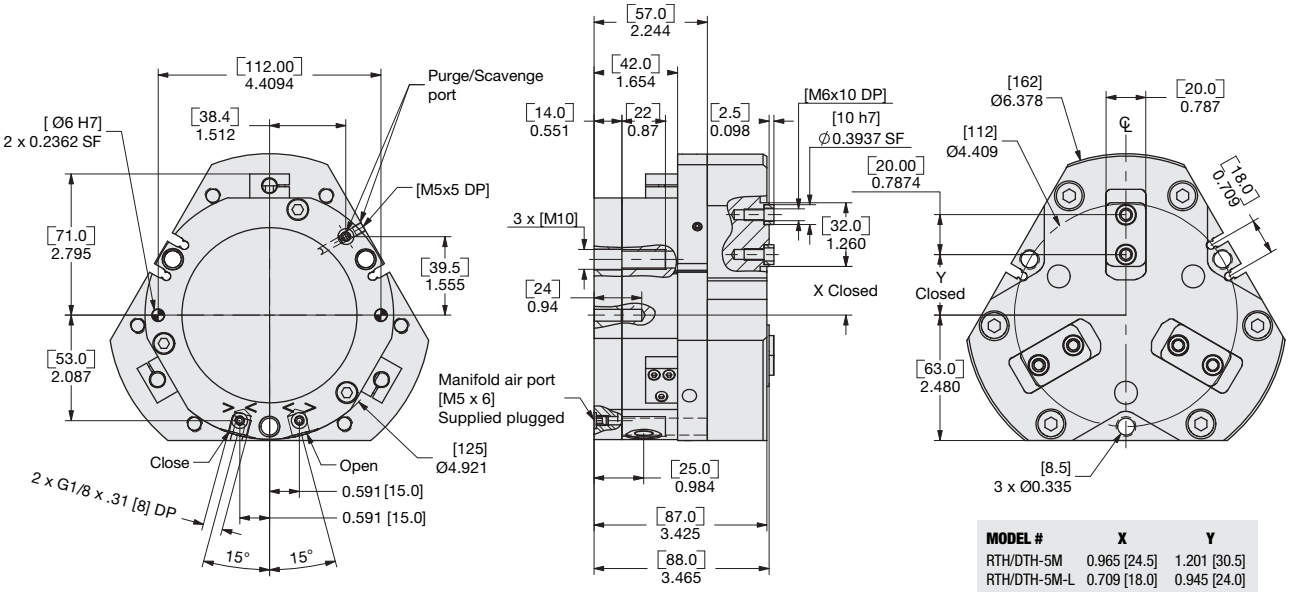
Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
  - For side air port location
  - Top air port are plugged as standard

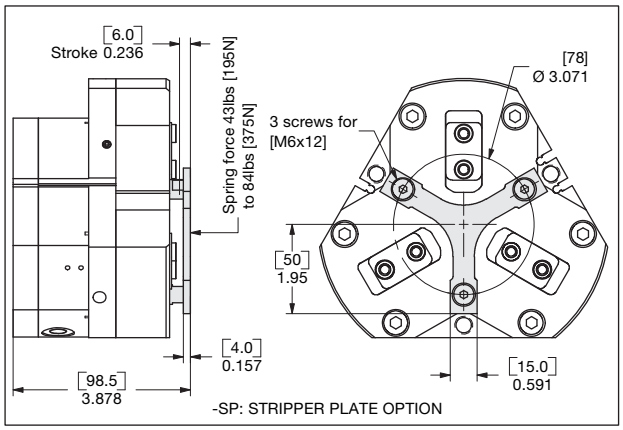
DIRECT CONNECT™

PARALLEL GRIPPER RTH/DTH-5M
3-JAW CENTERING SERIES

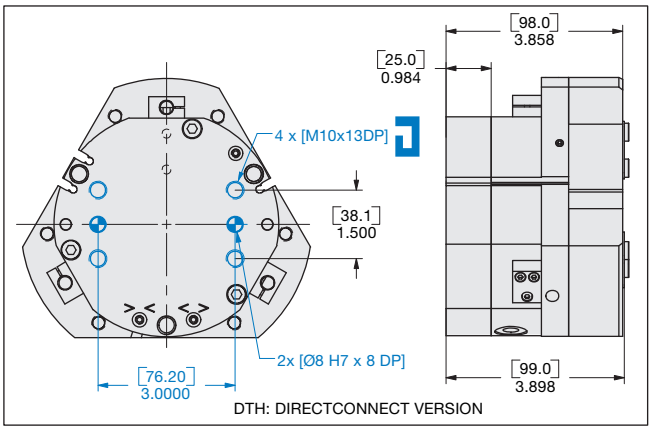
Robohand



MODEL #	X	Y
RTH/DTH-5M	0.965 [24.5]	1.201 [30.5]
RTH/DTH-5M-L	0.709 [18.0]	0.945 [24.0]



-SP: STRIPPER PLATE OPTION



DTH: DIRECTCONNECT VERSION

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SIZE | METRIC | SPRING ASSIST

[ ] - 5 M - [L] - [ ] - [SP] - [V]

EXTENDED STROKE | STRIPPER PLATE

BASIC MODEL	**RTH**	Without DIRECTCONNECT Mounting Pattern
	DTH	With DIRECTCONNECT Mounting Pattern
SIZE	**5**	
METRIC	**M**	
EXTENDED STROKE	**__**	0.51" [13mm] Leave Blank (standard)
	L	1.02" [26mm]
SPRING	**C**	Spring Closed
	O	Spring Open
	__	Leave Blank. No Spring Option (standard)
STRIPPER PLATE	**SP**	
VITON® SEALS	**V**	High Temperature Viton® Seals

SAMPLE ORDER: DTH-5M-L-C-SP-V

Ex: DTH-5M DIRECTCONNECT Gripper, Metric, 26mm Extended Stroke, Spring Closed, Stripper Plate, Viton® Seals

SENSOR ACCESSORIES*

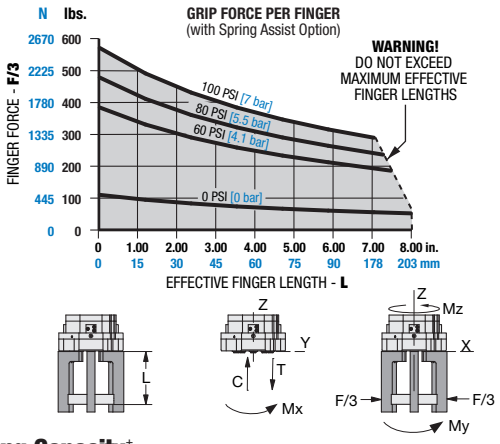
8mm NPN Inductive Sensor w/Quick Disconnect*	**OISN-011**	**1, 2 or 3**
8mm PNP Inductive Sensor w/Quick Disconnect*	**OISP-011**	**1, 2 or 3**
PNP Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSP-017**	**1, 2 or 3**
NPN Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSN-017**	**1, 2 or 3**
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disc*	**OHSP-011**	**1, 2 or 3**
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disc*	**OHSN-011**	**1, 2 or 3**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1, 2 or 3**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1, 2 or 3**

PNEUMATIC ACCESSORIES

Buna-N Seal Repair Kit	**SLKT-351**	**1**
Buna-N Rear Inlet Seal Repair Kit	**SLKT-365**	**1**
Viton® Seal Repair Kit	**SLKT-351V**	**1**
Viton® Rear Inlet Seal Repair Kit	**SLKT-365V**	**1**
G 1/8" Adjustable Flow Control	**VLVF-005**	**1 or 2**
Adapter G 1/8 Male to 1/8 NPT Female	**PLFT-025**	**1 or 2**

*Sensor and cable sold separately.

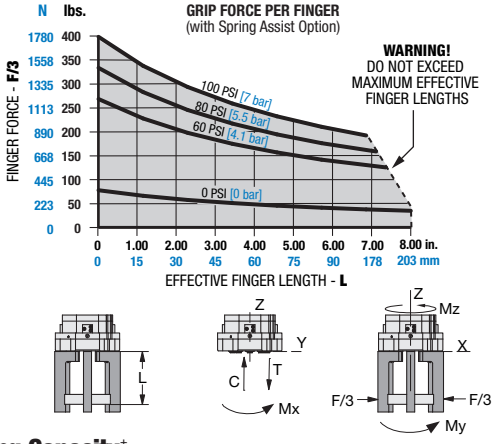
RTH/DTH-5M Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	672 lbs. [2990 N]	152 lbs. [674 N]
Maximum Compressive **C**	895 lbs. [3980 N]	152 lbs. [674 N]
Maximum Moment **Mx**	1124 in.-lbs. [127 Nm]	221 in.-lbs. [25 Nm]
Maximum Moment **My**	1584 in.-lbs. [179 Nm]	310 in.-lbs. [35 Nm]
Maximum Moment **Mz**	1036 in.-lbs. [117 Nm]	310 in.-lbs. [35 Nm]

†Capacities are per set of jaws and are not simultaneous

RTH/DTH-5M-L Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	602 lbs. [2680 N]	97 lbs. [432 N]
Maximum Compressive **C**	803 lbs. [3570 N]	97 lbs. [432 N]
Maximum Moment **Mx**	1009 in.-lbs. [114 Nm]	142 in.-lbs. [16 Nm]
Maximum Moment **My**	1275 in.-lbs. [144 Nm]	177 in.-lbs. [20 Nm]
Maximum Moment **Mz**	832 in.-lbs. [94 Nm]	177 in.-lbs. [20 Nm]

†Capacities are per set of jaws and are not simultaneous

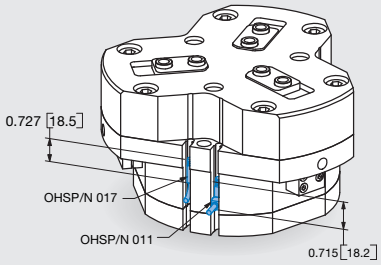
Specifications

Total Rated Grip Force, **F** @ 100 psi [7 bar]:		
Without Spring Assist	1428 lbs.	6353 N
Without Spring Assist **-L**	927 lbs.	4125 N
With Spring Assist	1771 lbs.	7877 N
With Spring Assist **-L**	1152 lbs.	5124 N
Total Stroke:		
Standard	0.51 in.	13 mm
Extended **-L**	1.02 in.	26 mm
Weight	8.6 lbs.	3.9 Kg
Pressure Range without Spring	30-100 psi	2-7 Bar
Pressure Range with Spring	45-100 psi	3-7 Bar

Specifications (cont.)

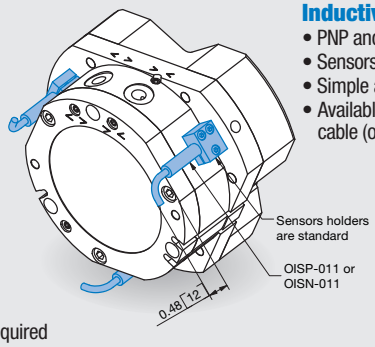
Max. Vacuum for Scavenge Port	8 in. Hg	20 mm Hg
Max. Pressure for Purge Port	30 psi	2.1 Bar
Cylinder Bore Ø	3.75 in.	95 mm
Displacement	11.0 in^3.	180 cm^3
Temperature Range	-20°~300° F	-30°~150° C
Actuation (open/close)	0.19 sec./0.19 sec.	
Accuracy	±0.0024 in.	±0.06 mm
Repeatability	±0.0012 in.	±0.03 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Accessory Mounting Technical Data



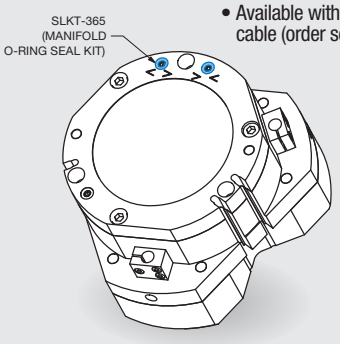
Magneto Resistive Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



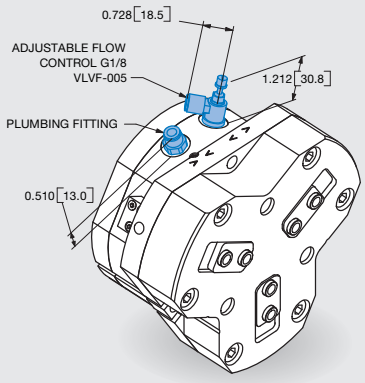
Inductive Sensors

- PNP and NPN Magneto Resistive available
- Sensors holders and targets are standard mounted
- Simple adjustment of the target with screw driver
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



Manifold O-Ring seals

- Used to seal top air ports and purge/scavenge port
- No C'bore holes in customer's mounting plate required (C'bore are machined in the gripper's body)
- Seals in manifold kit are Buna-N (Viton® seal kit SLKT-365V)



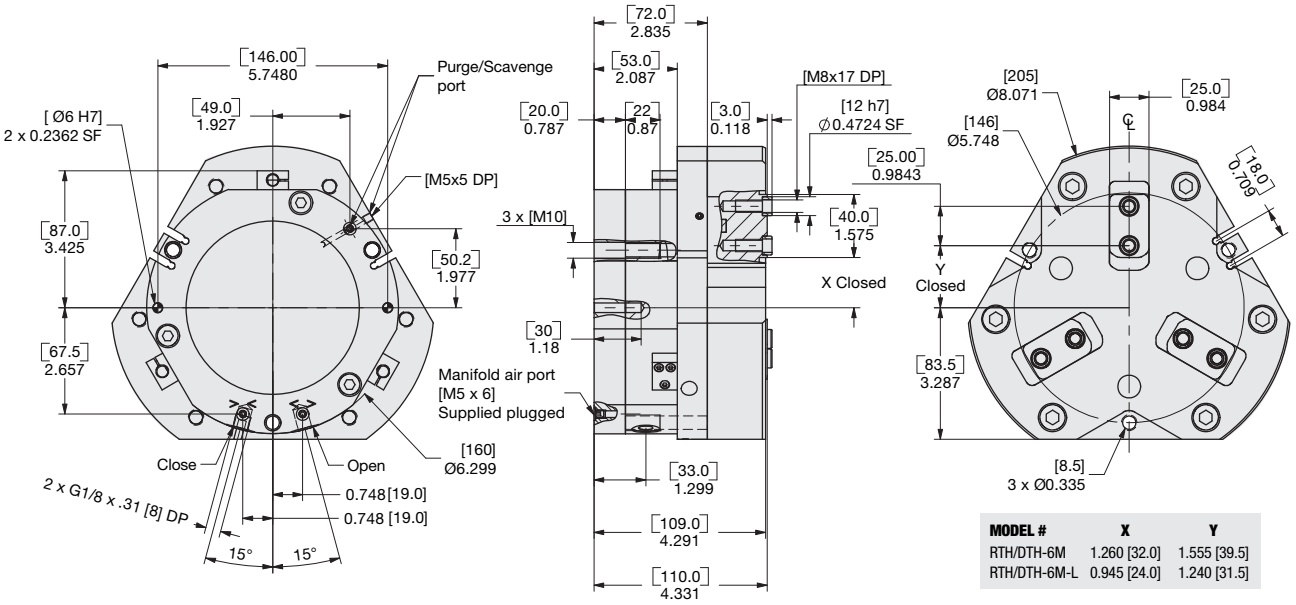
Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
  - For side air port location
  - Top air port are plugged as standard

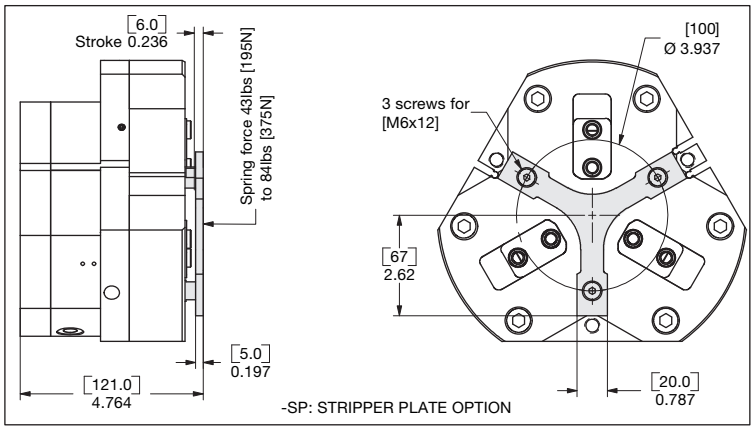
DIRECT CONNECT™

PARALLEL GRIPPER RTH-6M
3-JAW CENTERING SERIES

Robohand



MODEL #	X	Y
RTH/DTH-6M	1.260 [32.0]	1.555 [39.5]
RTH/DTH-6M-L	0.945 [24.0]	1.240 [31.5]



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SIZE | METRIC | SPRING ASSIST

RTH - 6 M - L - ___ - SP - V

EXTENDED STROKE | STRIPPER PLATE

BASIC MODEL	**RTH**	Without DIRECTCONNECT Mounting Pattern
SIZE	**6**	
METRIC	**M**	
EXTENDED STROKE	**___**	0.63" [16mm] Leave Blank (standard)
	L	1.26" [32mm]
SPRING	**C**	Spring Closed
	O	Spring Open
	___	Leave Blank. No Spring Option (standard)
STRIPPER PLATE	**SP**	
VITON® SEALS	**V**	High Temperature Viton® Seals

SAMPLE ORDER: RTH-6M-L-C-SP-V

Ex: RTH-6M Parallel Gripper, Metric, 32mm Extended Stroke, Spring Closed, Stripper Plate, Viton® Seals

SENSOR ACCESSORIES*

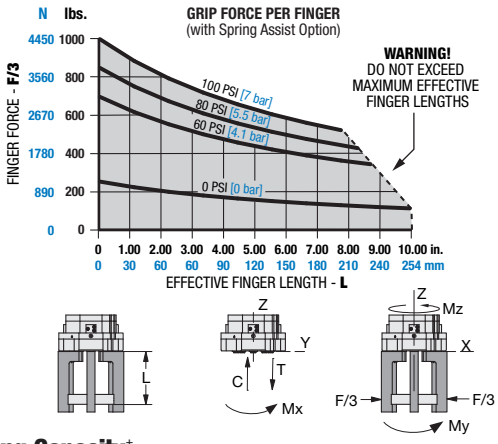
8mm NPN Inductive Sensor w/Quick Disconnect*	**OISN-011**	**1, 2 or 3**
8mm PNP Inductive Sensor w/Quick Disconnect*	**OISP-011**	**1, 2 or 3**
PNP Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSP-017**	**1, 2 or 3**
NPN Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSN-017**	**1, 2 or 3**
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disc*	**OHSP-011**	**1, 2 or 3**
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disc*	**OHSN-011**	**1, 2 or 3**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1, 2 or 3**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1, 2 or 3**

PNEUMATIC ACCESSORIES

Buna-N Seal Repair Kit	**SLKT-352**	**1**
Buna-N Rear Inlet Seal Repair Kit	**SLKT-365**	**1**
Viton® Seal Repair Kit	**SLKT-352V**	**1**
Viton® Rear Inlet Seal Repair Kit	**SLKT-365V**	**1**
G 1/8" Adjustable Flow Control	**VLVF-005**	**1 or 2**
Adapter G 1/8 Male to 1/8 NPT Female	**PLFT-025**	**1 or 2**

*Sensor and cable sold separately.

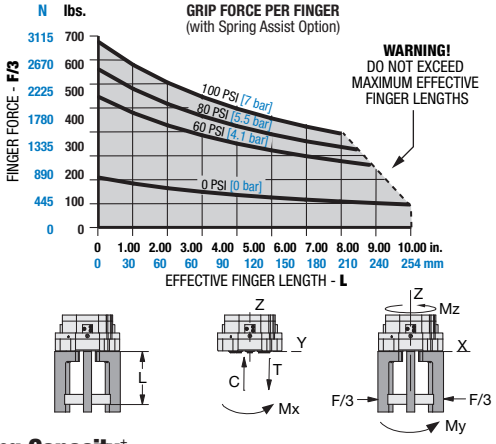
RTH/DTH-6M Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	971 lbs. [4320 N]	296 lbs. [1315 N]
Maximum Compressive **C**	1306 lbs. [5810 N]	296 lbs. [1315 N]
Maximum Moment **Mx**	1522 in.-lbs. [172 Nm]	398 in.-lbs. [45 Nm]
Maximum Moment **My**	2213 in.-lbs. [250 Nm]	575 in.-lbs. [65 Nm]
Maximum Moment **Mz**	1452 in.-lbs. [164 Nm]	575 in.-lbs. [65 Nm]

†Capacities are per set of jaws and are not simultaneous

RTH/DTH-6M-L Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	868 lbs. [3860 N]	192 lbs. [852 N]
Maximum Compressive **C**	1165 lbs. [5180 N]	192 lbs. [852 N]
Maximum Moment **Mx**	1363 in.-lbs. [154 Nm]	257 in.-lbs. [29 Nm]
Maximum Moment **My**	1761 in.-lbs. [199 Nm]	327 in.-lbs. [37 Nm]
Maximum Moment **Mz**	1159 in.-lbs. [131 Nm]	327 in.-lbs. [37 Nm]

†Capacities are per set of jaws and are not simultaneous

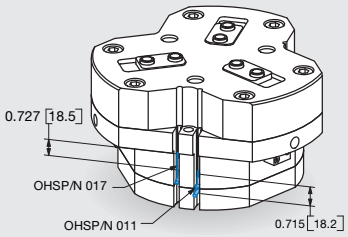
Specifications

Total Rated Grip Force, **F** @ 100 psi [7 bar]:		
Without Spring Assist	2294 lbs.	10202 N
Without Spring Assist **-L**	1490 lbs.	6629 N
With Spring Assist	3099 lbs.	13786 N
With Spring Assist **-L**	2017 lbs.	8971 N
Total Stroke:		
Standard	0.63 in.	16 mm
Extended **-L**	1.26 in.	32 mm
Weight	17.4 lbs.	7.89 Kg
Pressure Range without Spring	30-100 psi	2-7 Bar
Pressure Range with Spring	55-100 psi	4-7 Bar

Specifications (cont.)

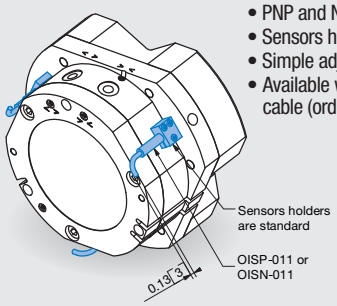
Max. Vacuum for Scavenge Port	8 in. Hg	20 mm Hg
Max. Pressure for Purge Port	30 psi	2.1 Bar
Cylinder Bore Ø	4.72 in.	120 mm
Displacement	22 in^3.	355 cm^3
Temperature Range	-20°~300° F	-30°~150° C
Actuation (open/close)	0.36 sec./0.36 sec.	
Accuracy	±0.0032 in.	±0.08 mm
Repeatability	±0.002 in.	±0.04 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Accessory Mounting Technical Data



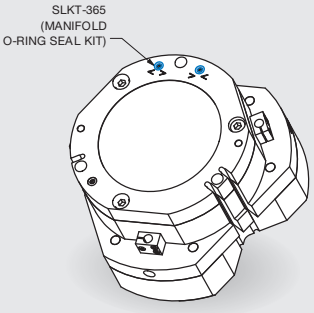
Magneto Resistive Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



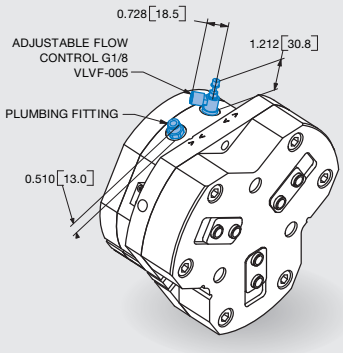
Inductive Sensors

- PNP and NPN Magneto Resistive available
- Sensors holders and targets are standard mounted
- Simple adjustment of the target with screw driver
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



Manifold O-Ring seals

- Used to seal top air ports and purge/scavenge port
- No C'bore holes in customer's mounting plate required (C'bore are machined in the gripper's body)
- Seals in manifold kit are Buna-N (Viton® seal kit SLKT-365V)

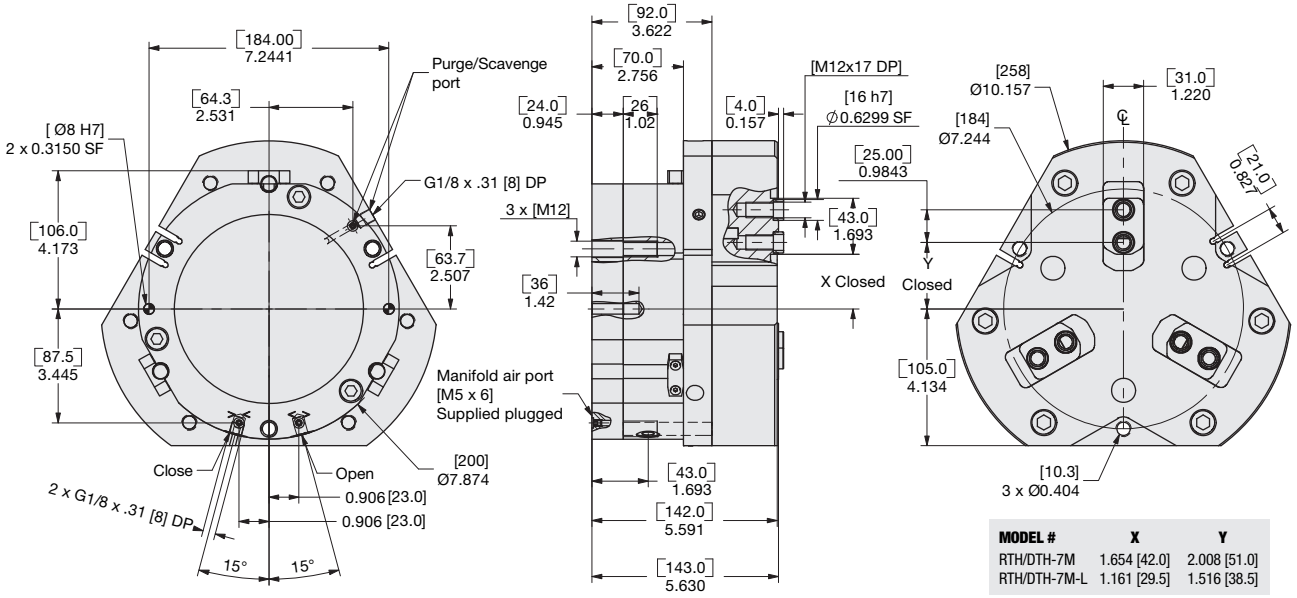


Plumbing Fittings

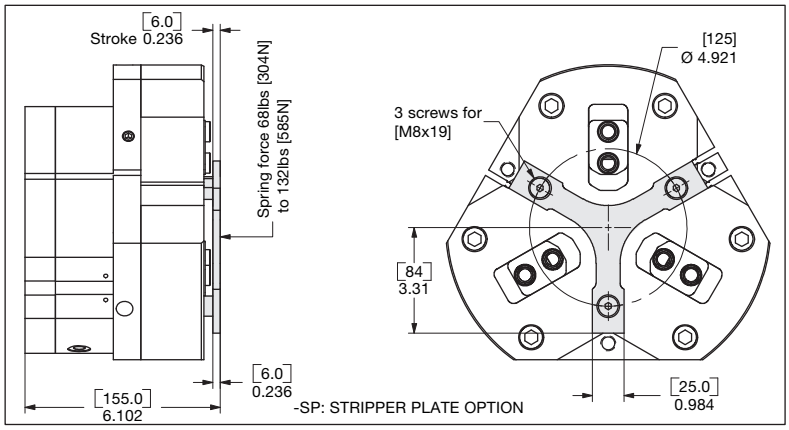
- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
  - For side air port location
  - Top air port are plugged as standard

PARALLEL GRIPPER RTH-7M
3-JAW CENTERING SERIES

Robohand



MODEL #	X	Y
RTH/DTH-7M	1.654 [42.0]	2.008 [51.0]
RTH/DTH-7M-L	1.161 [29.5]	1.516 [38.5]



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SIZE | METRIC | SPRING ASSIST | EXTENDED STROKE | STRIPPER PLATE

RTH - 7 M - L - C - SP - V

BASIC MODEL	**RTH**	Without DIRECTCONNECT Mounting Pattern
SIZE	**7**	
METRIC	**M**	
EXTENDED STROKE	__	0.98" [25mm] Leave Blank (standard)
	L	1.97" [50mm]
SPRING	**C**	Spring Closed
	O	Spring Open
	__	Leave Blank. No Spring Option (standard)
STRIPPER PLATE	**SP**	
VITON® SEALS	**V**	High Temperature Viton® Seals

SAMPLE ORDER: RTH-7M-L-C-SP-V

Ex: RTH-7M Parallel Gripper, Metric, 50mm Extended Stroke, Spring Closed, Stripper Plate, Viton® Seals

SENSOR ACCESSORIES*

12mm NPN Inductive Sensor M12 w/Quick Disconnect*	**OISN-017**	**1, 2 or 3**
12mm PNP Inductive Sensor M12 w/Quick Disconnect*	**OISP-017**	**1, 2 or 3**
PNP Magneto Resistive Sensor M8 w/Qk Disc*	**OHSP-017**	**1, 2 or 3**
NPN Magneto Resistive Sensor M8 w/Qk Disc*	**OHSN-017**	**1, 2 or 3**
PNP Magneto Resistive Sensor (90° barrel) M8 w/Qk. Disc*	**OHSP-011**	**1, 2 or 3**
NPN Magneto Resistive Sensor (90° barrel) M8 w/Qk. Disc*	**OHSN-011**	**1, 2 or 3**
M8 Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1, 2 or 3**
M8 Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1, 2 or 3**
M12 Quick Disconnect 2 Meter Cable Length*	**CABL-014**	**1, 2 or 3**
M12 Quick Disconnect 5 Meter Cable Length*	**CABL-018**	**1, 2 or 3**

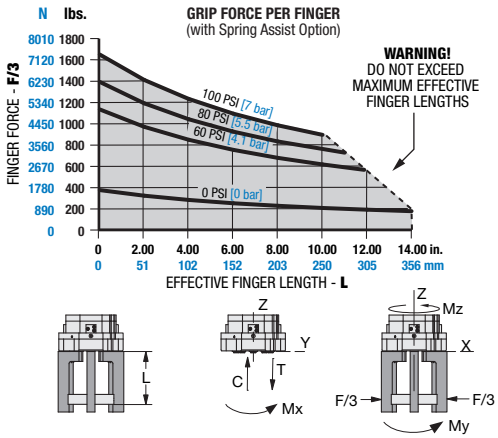
PNEUMATIC ACCESSORIES

Buna-N Seal Repair Kit	**SLKT-353**	**1**
Buna-N Rear Inlet Seal Repair Kit	**SLKT-365**	**1**
Viton® Seal Repair Kit	**SLKT-353V**	**1**
Viton® Rear Inlet Seal Repair Kit	**SLKT-365V**	**1**
G 1/8" Adjustable Flow Control	**VLVF-005**	**1 or 2**

*Sensor and cable sold separately.

DIRECTCONNECT™

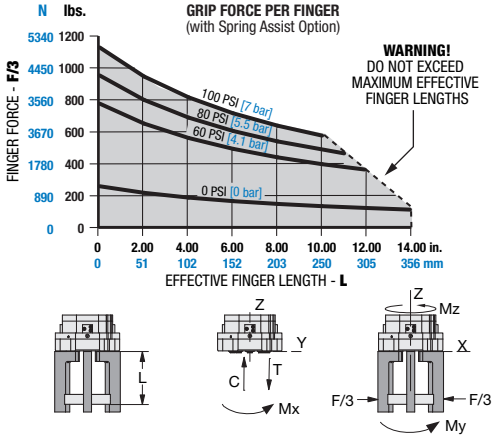
RTH/DTH-7M Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	1214 lbs. [5400 N]	396 lbs. [1763 N]
Maximum Compressive **C**	1601 lbs. [7120 N]	396 lbs. [1763 N]
Maximum Moment **Mx**	1903 in.-lbs. [215 Nm]	531 in.-lbs. [60 Nm]
Maximum Moment **My**	2699 in.-lbs. [305 Nm]	761 in.-lbs. [86 Nm]
Maximum Moment **Mz**	1841 in.-lbs. [208 Nm]	761 in.-lbs. [86 Nm]

†Capacities are per set of jaws and are not simultaneous

RTH/DTH-7M-L Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	1054 lbs. [4690 N]	257 lbs. [1141 N]
Maximum Compressive **C**	1389 lbs. [6180 N]	257 lbs. [1141 N]
Maximum Moment **Mx**	1646 in.-lbs. [186 Nm]	345 in.-lbs. [39 Nm]
Maximum Moment **My**	2036 in.-lbs. [230 Nm]	425 in.-lbs. [48 Nm]
Maximum Moment **Mz**	1381 in.-lbs. [156 Nm]	425 in.-lbs. [48 Nm]

†Capacities are per set of jaws and are not simultaneous

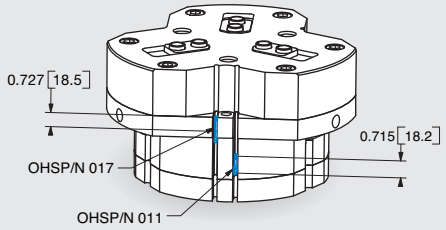
Specifications

Total Rated Grip Force, **F** @ 100 psi [7 bar]:		
Without Spring Assist	3859 lbs.	17165 N
Without Spring Assist **-L**	2496 lbs.	11102 N
With Spring Assist	4967 lbs.	22093 N
With Spring Assist **-L**	3222 lbs.	14322 N
Total Stroke:		
Standard	0.98 in.	25 mm
Extended **-L**	1.97 in.	50 mm
Weight	34.6 lbs.	15.7 Kg
Pressure Range without Spring	30-100 psi	2-7 Bar
Pressure Range with Spring	55-100 psi	4-7 Bar

Specifications (cont.)

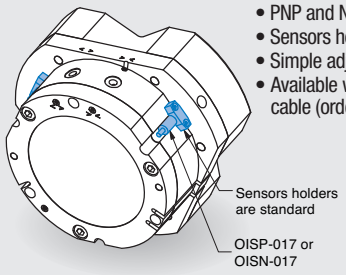
Max. Vacuum for Scavenge Port	8 in. Hg	20 mm Hg
Max. Pressure for Purge Port	30 psi	2.1 Bar
Cylinder Bore Ø	6.15 in.	156 mm
Displacement	37 in^3.	940 cm^3
Temperature Range	-20°~300° F	-30°~150° C
Actuation (open/close)	0.85 sec./0.85 sec.	
Accuracy	±0.004 in.	±0.1 mm
Repeatability	±0.002 in.	±0.05 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Accessory Mounting Technical Data



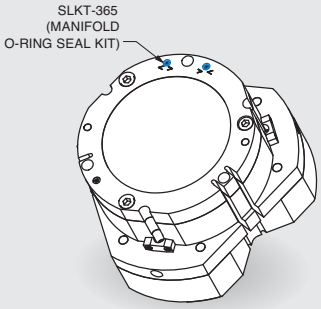
Magneto Resistive Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



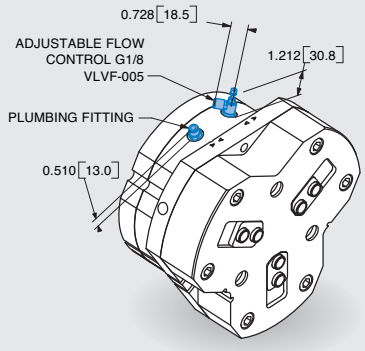
Inductive Sensors

- PNP and NPN Magneto Resistive available
- Sensors holders and targets are standard mounted
- Simple adjustment of the target with screw driver
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



Manifold O-Ring seals

- Used to seal top air ports and purge/scavenge port
- No C'bore holes in customer's mounting plate required (C'bore are machined in the gripper's body)
- Seals in manifold kit are Buna-N (Viton® seal kit SLKT-365V)



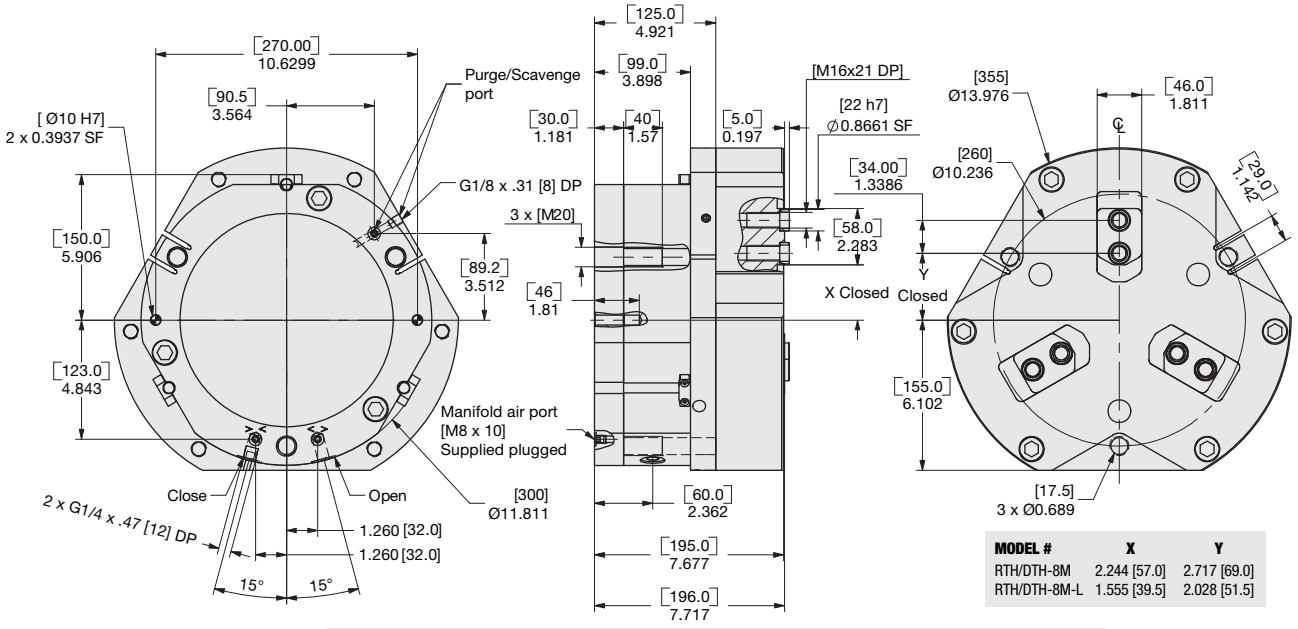
Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
  - For side air port location
  - Top air port are plugged as standard

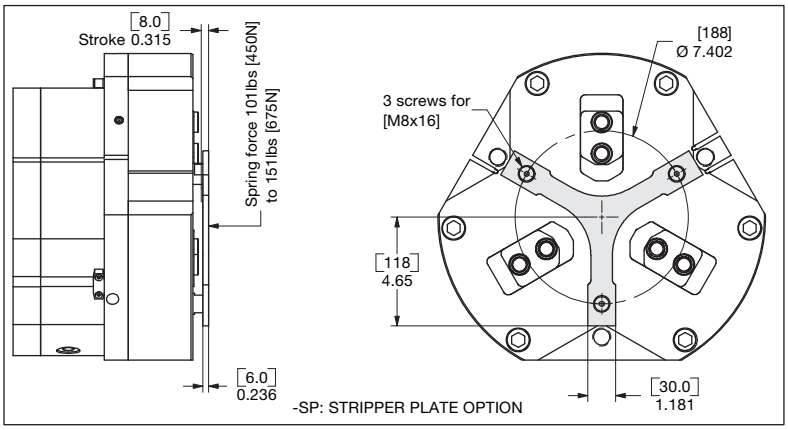
DIRECT CONNECT™

PARALLEL GRIPPER RTH-8M
3-JAW CENTERING SERIES

Robohand



MODEL #	X	Y
RTH/DTH-8M	2.244 [57.0]	2.717 [69.0]
RTH/DTH-8M-L	1.555 [39.5]	2.028 [51.5]



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | SIZE | METRIC | SPRING ASSIST | EXTENDED STROKE | STRIPPER PLATE

RTH - 8 M - L - ___ - SP - V

BASIC MODEL	**RTH**	Without DIRECTCONNECT Mounting Pattern
SIZE	**8**	
METRIC	**M**	
EXTENDED STROKE	**__**	1.38" [35mm] Leave Blank (standard)
	L	2.76" [70mm]
SPRING	**C**	Spring Closed
	O	Spring Open
	__	Leave Blank. No Spring Option (standard)
STRIPPER PLATE	**SP**	
VITON® SEALS	**V**	High Temperature Viton® Seals

SAMPLE ORDER: RTH-8M-L-C-SP-V

Ex: RTH-8M Parallel Gripper, Metric, 70mm Extended Stroke, Spring Closed, Stripper Plate, Viton® Seals

SENSOR ACCESSORIES*

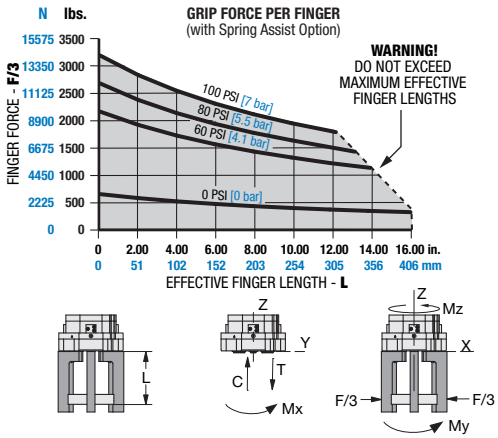
12mm NPN Inductive Sensor M12 w/Quick Disconnect*	**OISN-017**	**1, 2 or 3**
12mm PNP Inductive Sensor M12 w/Quick Disconnect*	**OISP-017**	**1, 2 or 3**
PNP Magneto Resistive Sensor M8 w/Qk Disc*	**OHSP-017**	**1, 2 or 3**
NPN Magneto Resistive Sensor M8 w/Qk Disc*	**OHSN-017**	**1, 2 or 3**
PNP Magneto Resistive Sensor (90° barrel) M8 w/Qk. Disc*	**OHSP-011**	**1, 2 or 3**
NPN Magneto Resistive Sensor (90° barrel) M8 w/Qk. Disc*	**OHSN-011**	**1, 2 or 3**
M8 Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1, 2 or 3**
M8 Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1, 2 or 3**
M12 Quick Disconnect 2 Meter Cable Length*	**CABL-014**	**1, 2 or 3**
M12 Quick Disconnect 5 Meter Cable Length*	**CABL-018**	**1, 2 or 3**

PNEUMATIC ACCESSORIES

Buna-N Seal Repair Kit	**SLKT-354**	**1**
Buna-N Rear Inlet Seal Repair Kit	**SLKT-366**	**1**
Viton® Seal Repair Kit	**SLKT-354V**	**1**
Viton® Rear Inlet Seal Repair Kit	**SLKT-366V**	**1**
G 1/4" Adjustable Flow Control	**VLVF-010**	**1 or 2**
Adapter G 1/4 Male to 1/4 NPT Female	**PLFT-024**	**1 or 2**

*Sensor and cable sold separately.

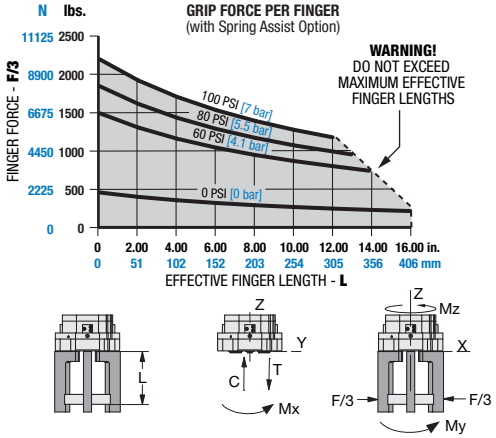
RTH/DTH-8M Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	1850 lbs. [8230 N]	614 lbs. [2733 N]
Maximum Compressive **C**	2405 lbs. [10700 N]	614 lbs. [2733 N]
Maximum Moment **Mx**	4027 in.-lbs. [455 Nm]	1159 in.-lbs. [131 Nm]
Maximum Moment **My**	5116 in.-lbs. [578 Nm]	1478 in.-lbs. [167 Nm]
Maximum Moment **Mz**	3204 in.-lbs. [362 Nm]	1478 in.-lbs. [167 Nm]

†Capacities are per set of jaws and are not simultaneous

RTH/DTH-8M-L Loading Information



Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	1592 lbs. [7080 N]	398 lbs. [1772 N]
Maximum Compressive **C**	2070 lbs. [9210 N]	398 lbs. [1772 N]
Maximum Moment **Mx**	3461 in.-lbs. [391 Nm]	752 in.-lbs. [85 Nm]
Maximum Moment **My**	3788 in.-lbs. [428 Nm]	823 in.-lbs. [93 Nm]
Maximum Moment **Mz**	2372 in.-lbs. [268 Nm]	823 in.-lbs. [93 Nm]

†Capacities are per set of jaws and are not simultaneous

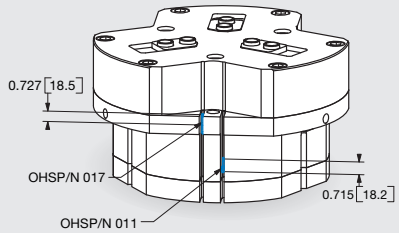
Specifications

Total Rated Grip Force, **F** @ 100 psi [7 bar]:		
Without Spring Assist	7933 lbs.	35288 N
Without Spring Assist **-L**	5122 lbs.	22784 N
With Spring Assist	9971 lbs.	44354 N
With Spring Assist **-L**	6450 lbs.	28690 N
Total Stroke:		
Standard	1.38 in.	35 mm
Extended **-L**	2.76 in.	70 mm
Weight	96.8 lbs.	43.9 Kg
Pressure Range without Spring	30-100 psi	2-7 Bar
Pressure Range with Spring	50-100 psi	3.5-7 Bar

Specifications (cont.)

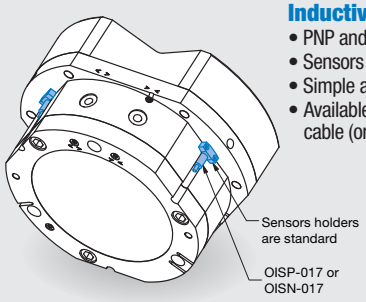
Max. Vacuum for Scavenge Port	8 in. Hg	20 mm Hg
Max. Pressure for Purge Port	30 psi	2.1 Bar
Cylinder Bore Ø	8.86 in.	225 mm
Displacement	166 in^3.	2720 cm^3
Temperature Range	-20°~300° F	-30°~150° C
Actuation (open/close)	1.7 sec./1.7 sec.	
Accuracy	±0.004 in.	±0.01 mm
Repeatability	±0.002 in.	±0.05 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Accessory Mounting Technical Data



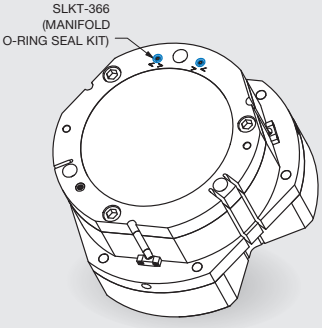
Magneto Resistive Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



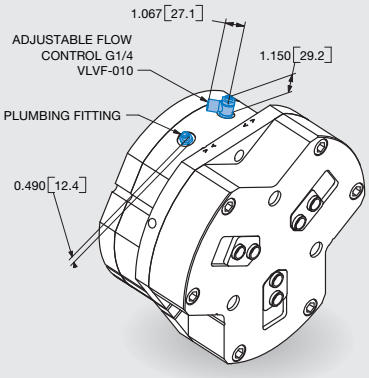
Inductive Sensors

- PNP and NPN Magneto Resistive available
- Sensors holders and targets are standard mounted
- Simple adjustment of the target with screw driver
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



Manifold O-Ring seals

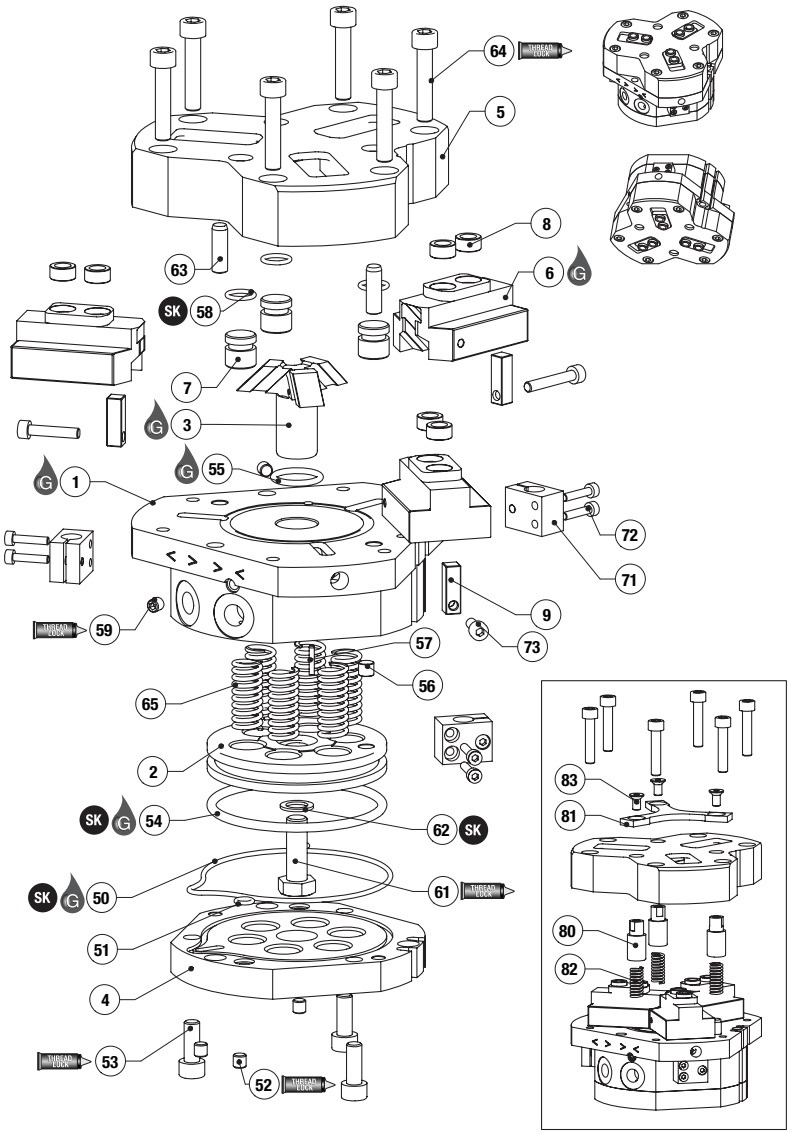
- Used to seal top air ports and purge/scavenge port
- No C'bore holes in customer's mounting plate required (C'bore are machined in the gripper's body)
- Seals in manifold kit are Buna-N (Viton® seal kit SLKT-366V)



Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
  - For side air port location
  - Top air port are plugged as standard

RTH/DTH Series Exploded View



Item	Qty	Name
01	1	Body
02	1	Piston
03	1	Triple wedge
04	1	Cap
05	1	Bottom Case
06	3	Jaws
07	3	Plug
08	6	Locating sleeve
09	3	Sensing nut
50	1	Cap, O-ring
51	2	Cap, O-ring
52	3	Cap, SS screw
53	3	Cap, SHC screw
54	1	Piston, O-ring
55	1	Body, O-ring
56	1	Piston, Magnet
57	1	Piston, Pin
58	3	Plug, O-Ring
59	2	Body, SS screw
61	1	Triple wedge, HH screw
62	1	Triple wedge, Seal
63	2	Slide, Pin
64	6	Slide, SHC Screw
65	6	Spring
71	3	Sensor holder
72	6	Sensor holder, SHC screw
73	3	Sensing nut, SHC screw
80	3	Stud
81	1	Pressure plate
82	3	Springs
83	3	Stud, screw

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

SK Seal Repair Kit Order #'s See Product Data Sheets

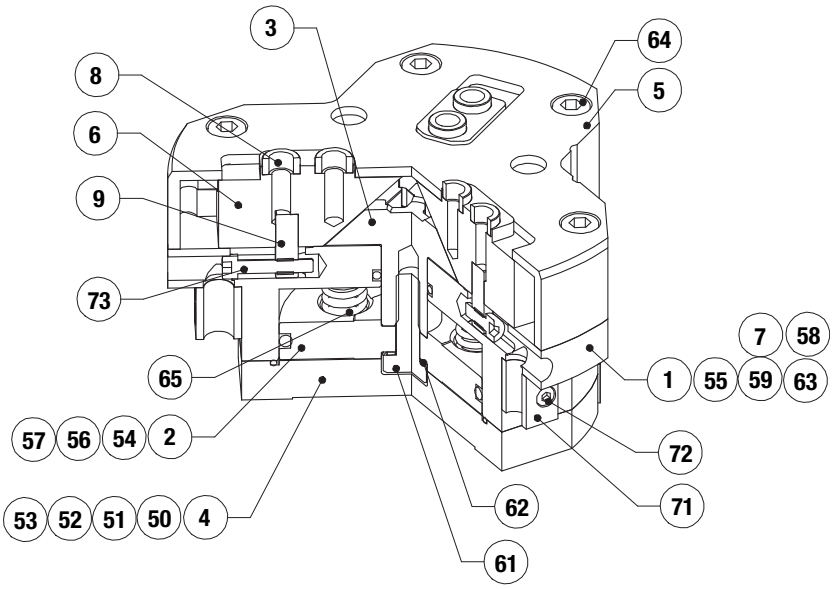
Assembly Procedure

1) Lubricate and install seals #55 into the body #1
2) Install #59 SS screws with thread locker into the body #1
3) Sub assemble the sensing nuts #9 into the jaws #6
4) Sub assemble the jaws #6 on either side of the triple wedge #3 with lubrica tion
5) Insert the jaws and triple wedge sub assembly into the body. To ensure a good positioning of the magnet, the dowel hole of the triple wedge (on tapped hole side) has to be positioned on the opposite side of the air ports (except size 1). For size 1, it has to be positioned between the sensor slots of the bod y.
6) Install seals #58 into the plugs #7
7) Insert the plugs #7 into the bottom case #5
8) Install bottom case #5 with pressed-in pins #63 onto the body and fasten with #64 screws with thread locker
9) Lubricate and install seals #54 into the piston #2
10) Mount magnet #56 to piston #2 with thread locker
11) For **-C** option, insert the spring #65 into the body counterbore holes
12) Insert the piston #2 with pressed-in pin #57 onto the triple wedge#3 and fasten with screw #61 and washer #62. Face mount the piston counterbore holes to the body counterbore holes for **-C** option. Opposite mount for **-O** option. For **-O** option, insert the spring #65 into the piston counterbore holes
14) Install #52 air ports plugs with thread locker onto the cap #4
15) Install seals #50 and #51 into the ca p #4
16) Insert the cap into the body and locate it using cap dowel pin holes.
17) Fasten the cap with #53 screws with thread locker
18) Install the sensor holder #71 onto the bod y and fasten with screw #72
19) Insert screw #73 into the sensing nuts #9 from the body holes
20) Insert locating sleeves #8 into the jaws

-SP Assembly Procedure

1) Disassemble bottom case #5 unfastening #64 screws
2) Sub assemble springs #82 into the stud #70
3) Insert the spring and stud sub assembly into the bottom case
4) Install bottom case #5 onto the bod y and fasten with #64 screws with thread locker
5) Install pressure plate #8 onto the studs and fasten with #83 screws

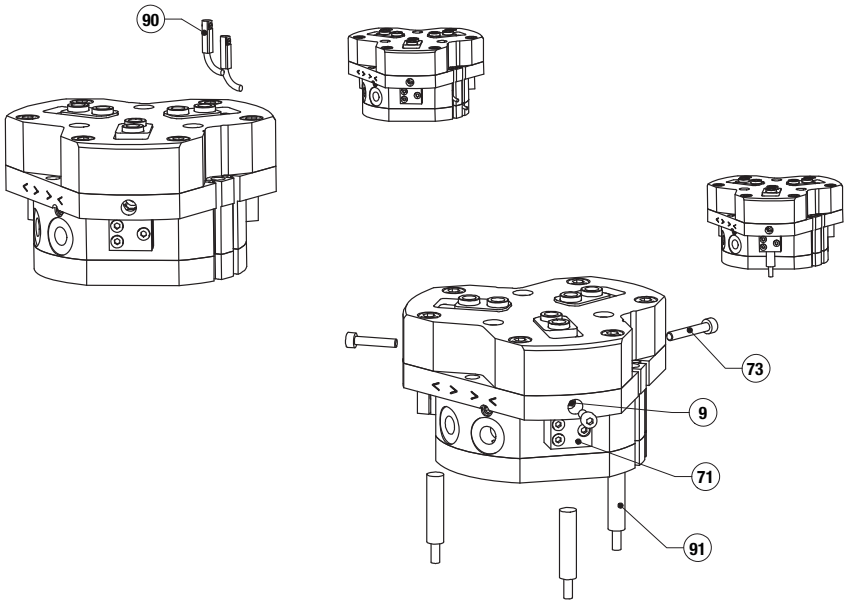
SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection



Item	Qty	Name
01	1	Body
02	1	Piston
03	1	Triple wedge
04	1	Cap
05	1	Bottom Case
06	3	Jaws
07	3	Plug
08	6	Locating sleeve
09	3	Sensing nut
50	1	Cap, O-ring
51	2	Cap, O-ring
52	3	Cap, SS screw
53	3	Cap, SHC screw
54	1	Piston, O-ring
55	1	Body, O-ring
56	1	Piston, Magnet
57	1	Piston, Pin
58	3	Plug, O-Ring
59	2	Body, SS screw
61	1	Triple wedge, HH screw
62	1	Triple wedge, Seal
63	2	Slide, Pin
64	6	Slide, SHC Screw
65	6	Spring
71	3	Sensor holder
72	6	Sensor holder, SHC screw
73	3	Sensing nut, SHC screw

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Accessory Installation & Adjustment Instructions



Magneto Resistive Sensor

1) Insert sensors #90 from either end of the profile slots
2) Set the sensor with the integra ted screw

Inductive Sensor

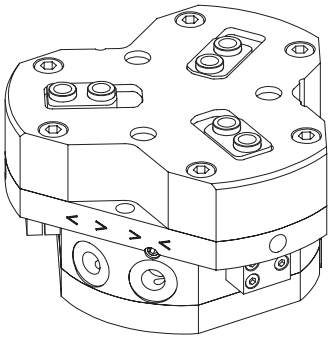
1) Insert sensors #91 into the sensor holder #72
2) Tighten the sensor using the SHC screw onto the sensor holder #72
3) Insert the SHC screw #73 into the sensing nuts #9. The SHC screws are the targets to be adjusted in front of the sensor. Depending on the position to sense, use different length for the SHC screw #73 (shortest screw for open position, longest screw for close position). The sensing nut #9 has a thread insert that prevents the target from loosening. This may make the target harder to tighten into the nut.

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

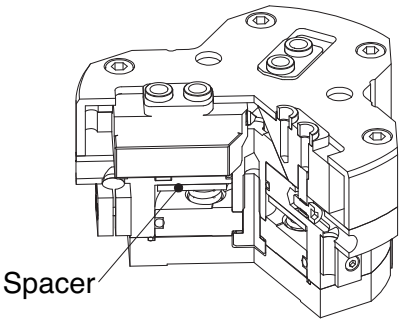
RTH/DTH SERIES SPECIALS

Fixed Jaws, Food-Grade Grease, Stroke Limiters, Custom Fingers and Jaws, Stainless Steel Components and more…

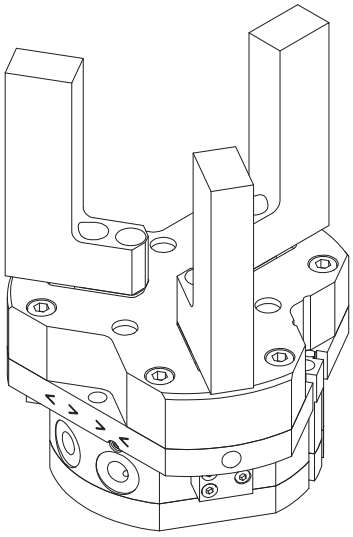
Drawings are for concept only.
Contact Robohand Tech Support
with project requirements.



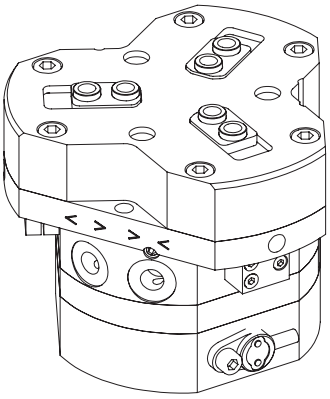
Fixed Jaws



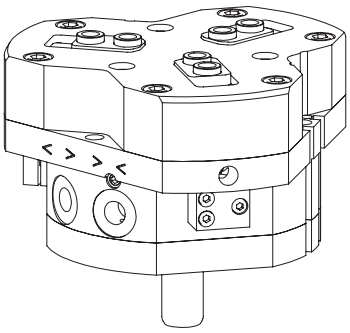
Stroke Limiter



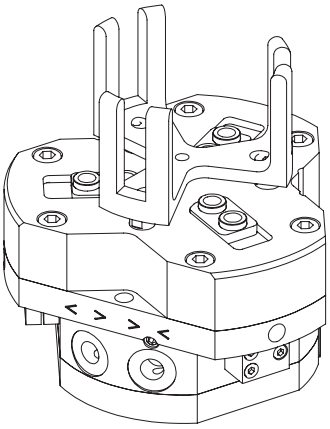
Custom Fingers and Jaws



Built-in Sensor with 2 Sensing Faces
2 or 3 Wire Technology

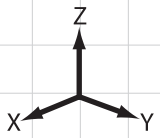


Shaft Output

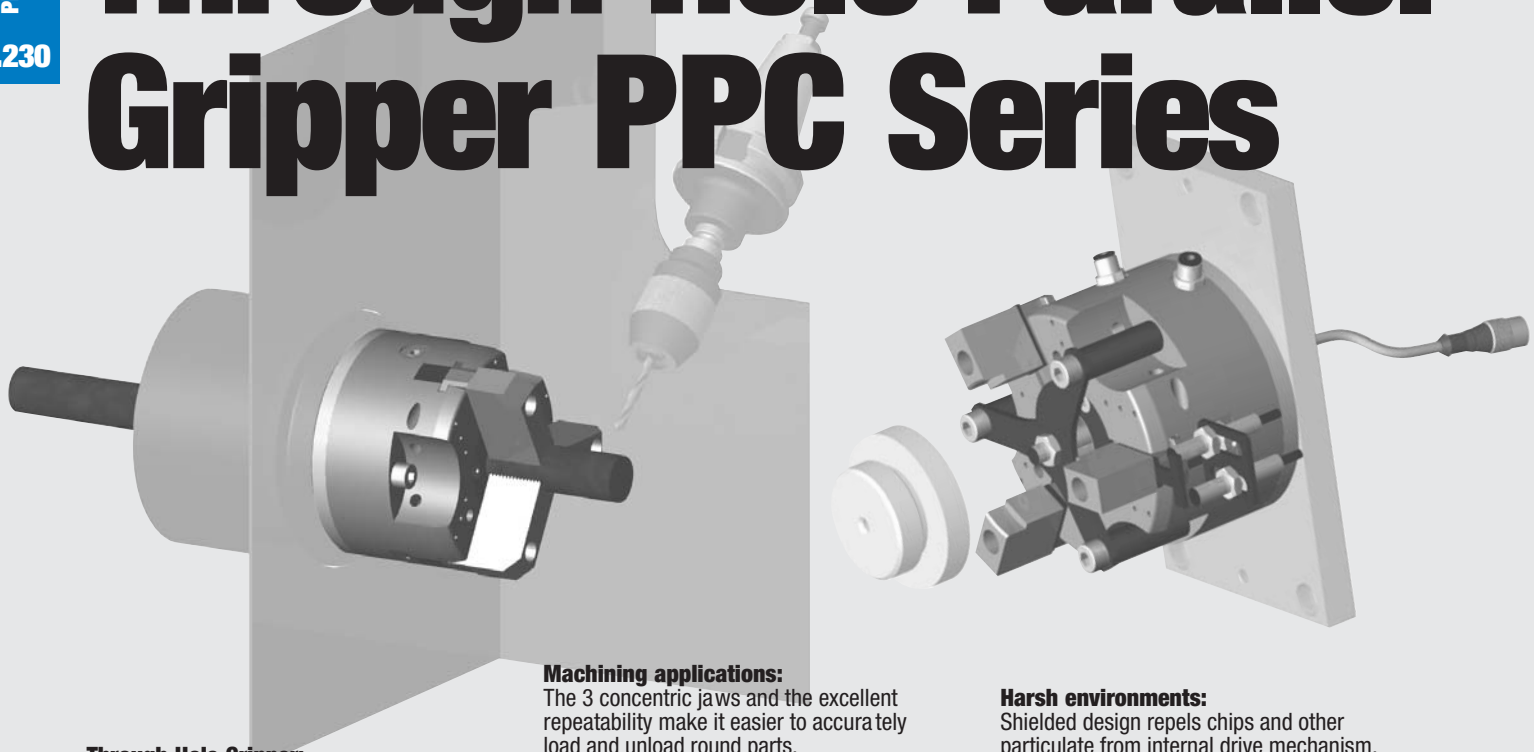


Custom Stripper Plate

Please describe your application. Include a sketch or attach additional sheets if necessary.



Through Hole Parallel Gripper PPC Series



Through Hole Gripper:
Designed for unique applications where a component ejector is needed after un-gripping the part or to blow air for cleaning the part center. The through hole design allows for the mounting of sensors to detect part presence, and for feeding parts to machining centers.

Machining applications:
The 3 concentric jaws and the excellent repeatability make it easier to accurately load and unload round parts.

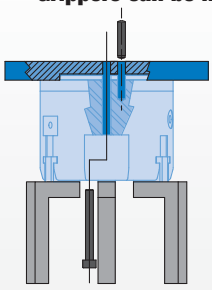
Compact, robust and powerful gripper:
This gripper is designed for use in confined spaces, combining long strokes with a high grip force. Optional safety springs retain the components, should the air supply fail or to increase grip force.

Harsh environments:
Shielded design repels chips and other particulate from internal drive mechanism.

Multipurpose gripper:
A wide range of options and accessories (extended stroke, safety springs for internal or external gripping, inductive sensors, Viton® seals) allow these grippers to be used in a number of applications.

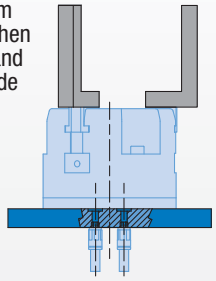
Mounting Information:

Grippers can be mounted and operated in any direction

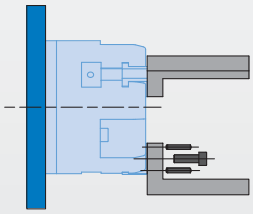


Gripper is located using pilot boss and a dowel pin and assembled with 3 through body screws

The gripper is protected from falling debris when it is mounted and operated upside down



Gripper can be operated utilizing top manifold air ports



Fingers are located on jaws with 2 dowel pins and assembled with 1 screw

Technical Specifications:

Pneumatic Specifications	Imperial	Metric
Pressure Operating Range without springs	30-100 psi	2-7 bar
Pressure Operating Range with springs	45-100 psi	3-7 bar
Cylinder Type	Double Acting *or* Double Acting Spring Assist *or* Single Acting Spring Return	
Dynamic Seals	Internally Lubricated Buna-N	
Valve Required to Operate		
Double Acting	4-way, 2-position	
Single Acting	3-way, 2-position	

Air Quality Requirements	
Air Filtration	40 Micron or Better
Air Lubrication	Not Necessary*
Air Humidity	Low Moisture Content (dry)

Temperature Operating Range		
Buna-N Seals (standard)	-30°~180° F	-35°~80° C
Viton® Seals (optional)	-20°~300° F	-30°~150° C

Maintenance Specifications†	
Expected Life	
Normal Application	5 million cycles
w/ Preventative Maintenance	10+ million cycles*
Field Repairable	Yes
Seal Repair Kits Available	Yes

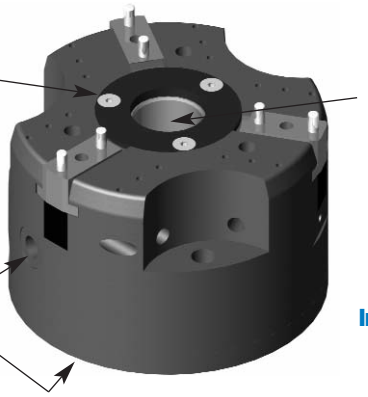
*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features

Viton® Seals
Optional for high temperature applications

Quality Components
Made from Aluminum alloy, hard coat anodized with Teflon® Impregnation. The gripper's main components are made of heat treated steel

Standard Stroke and Extended Stroke
Each model of gripper is available in 2 stroke lengths



Shield and Covers
Gripper body is shielded to repel chips and other particulate from internal drive mechanism

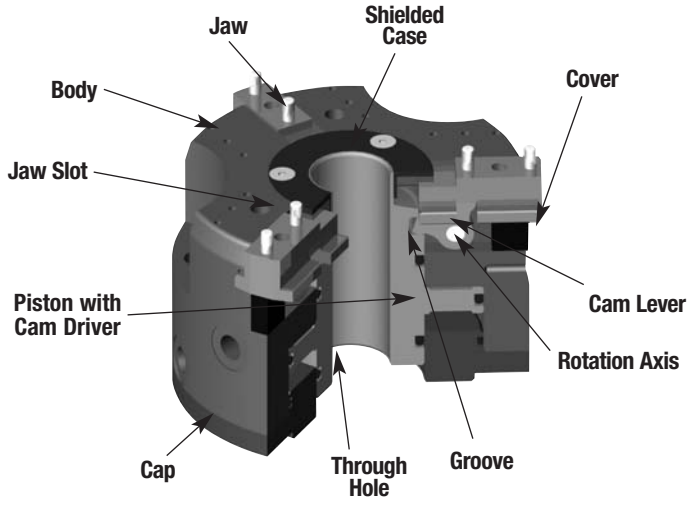
Through Hole Design
The standard hole diameter can be customized with optional sleeves

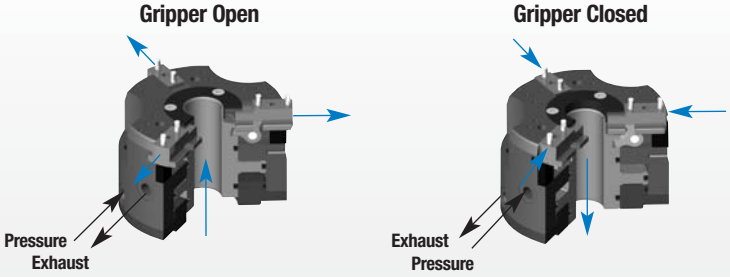
Multiple Ports
Side or top manifold ports

Inductive Sensing
Inductive sensor kits available. Capable of sensing 4 positions

Safety Springs
Optional Springs for internal gripping (-**RI**) or external gripping (-**RE**) in single acting mode or spring assist

Operating Principle





- A double acting piston with a through hole drives the three cams.
- The piston's motion makes the cam lever rotate and moves the jaws.
- The three cams synchronize the jaw motion.
- Optional springs can be used to increase the grip force or to hold part in the event of loss of air.
- This gripper is suitable for internal or external gripping.

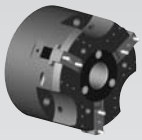
Style-PPC-12 & PPC-12-C

Style:	PPC-12	
Total Stroke:	0.394 in.	10 mm
Grip Force:	331 lb	1474 N
Weight:	2.2 lb	1.00 Kg

Style:	PPC-12-C	
Total Stroke:	0.630 in.	16 mm
Grip Force:	201 lb	896 N
Weight:	2.4 lb	1.10 Kg

See Page 1.232-1.233

Style-PPC-25 & PPC-25-C

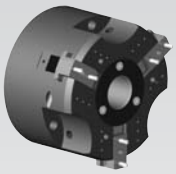


Style:	PPC-25	
Total Stroke:	0.512 in.	13 mm
Grip Force:	589 lb	2620 N
Weight:	4.9 lb	2.20 Kg

Style:	PPC-25-C	
Total Stroke:	0.787 in.	20 mm
Grip Force:	369 lb	1642 N
Weight:	5.1 lb	2.30 Kg

See Page 1.234-1.235

Style-PPC-34 & PPC-34-C



Style:	PPC-34	
Total Stroke:	0.787 in.	20 mm
Grip Force:	974 lb	4332 N
Weight:	11.2 lb	5.10 Kg

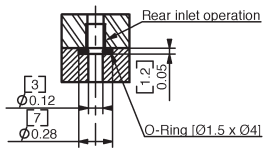
Style:	PPC-34-C	
Total Stroke:	1.181 in.	30 mm
Grip Force:	638 lb	2838 N
Weight:	11.7 lb	5.3 Kg

See Page 1.236-1.237

PARALLEL GRIPPERS PPC-12
THROUGH HOLE SERIES

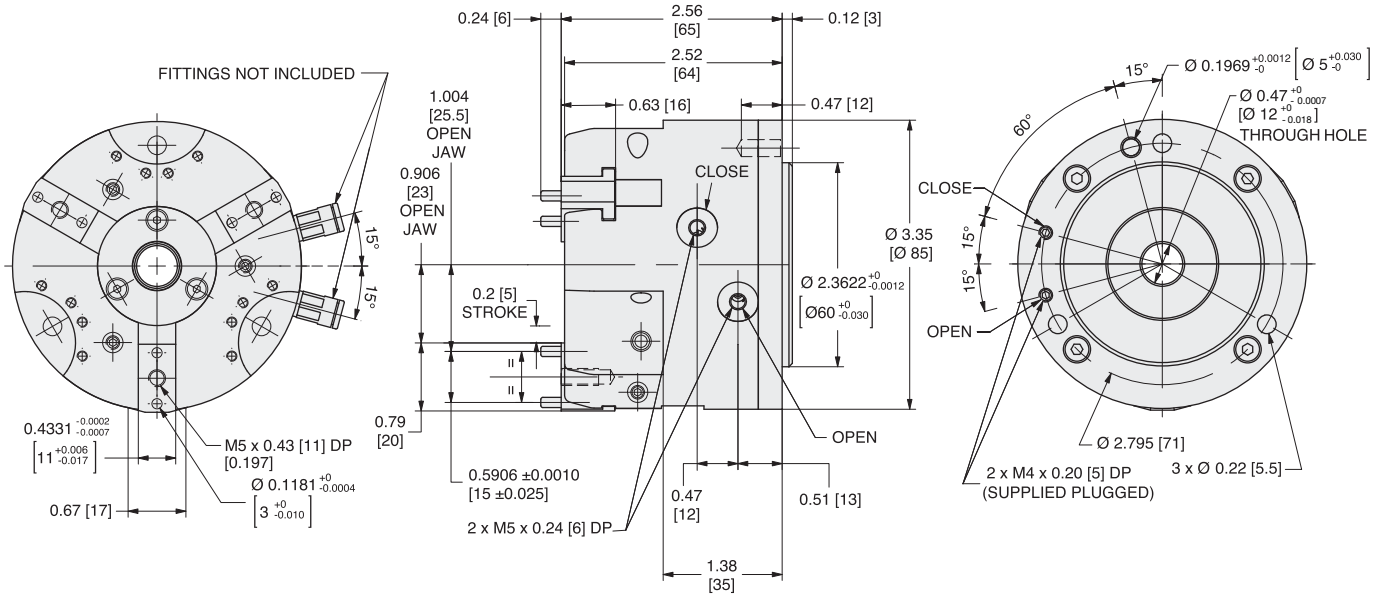
Robohand

Grippers are supplied with open side air ports and top manifold air ports plugged. Top manifold sealing dimensions shown.



Specifications	PPC-12	
Total Rated Grip Force @ 100 psi, 7 bar	331 lbs.*	1474 N*
Total Stroke	0.394 in.	10 mm
Weight	2.2 lbs.	1.0 Kg
Pressure Range without Springs	30-100 psi	2-7 bar
Pressure Range with Springs	45-100 psi	3-7 bar
Cylinder Bore Ø	2.48 in.	63 mm
Displacement	1.40 in^3.	23 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.03 sec.	0.03 sec.
Repeatability	±0.0008 in.	±0.02 mm

*with Option RE or RI



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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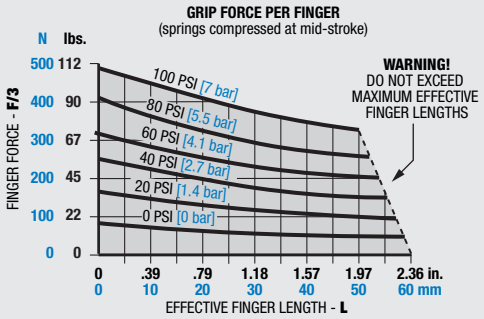
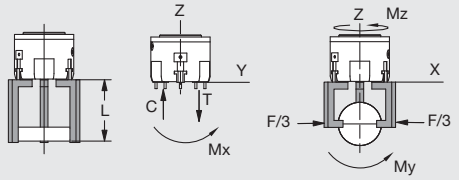




Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	191 lbs. [850 N]	49 lbs. [220 N]
Maximum Compressive **C**	259 lbs. [1150 N]	49 lbs. [220 N]
Maximum Moment **Mx**	177 in.-lbs. [20 Nm]	53 in.-lbs. [6 Nm]
Maximum Moment **My**	177 in.-lbs. [20 Nm]	53 in.-lbs. [6 Nm]
Maximum Moment **Mz**	443 in.-lbs. [50 Nm]	89 in.-lbs. [10 Nm]

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — VITON® SEALS

PPC-12 - ___ - V

SAFETY SPRINGS (See below)

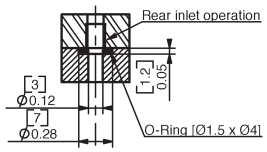
SAFETY SPRINGS **RE** External Clamping
RI Internal Clamping
__ Leave Blank. No Spring Option (standard)

SENSOR ACCESSORIES	Order #	QTY/UNIT
Inductive Sensor Holder Kit (1 Holder,1 Flag, 2 Spacers)	**OSMK-105**	**1 to 2**
Inductive NPN Sensor M8 with Quick Disconnect	**OISN-011**	**1 to 4**
Inductive PNP Sensor M8 with Quick Disconnect	**OISP-011**	**1 to 4**
Quick Disconnect 2 Meter Cable Length	**CABL-010**	**1 to 6**
Quick Disconnect 5 Meter Cable Length	**CABL-013**	**1 to 6**
PNEUMATIC ACCESSORIES		
Standard Seal Repair Kit	**SLKT-207**	**1**
Viton® Seal Repair Kit	**SLKT-207V**	**1**

Detailed sensor information at the end of this section.

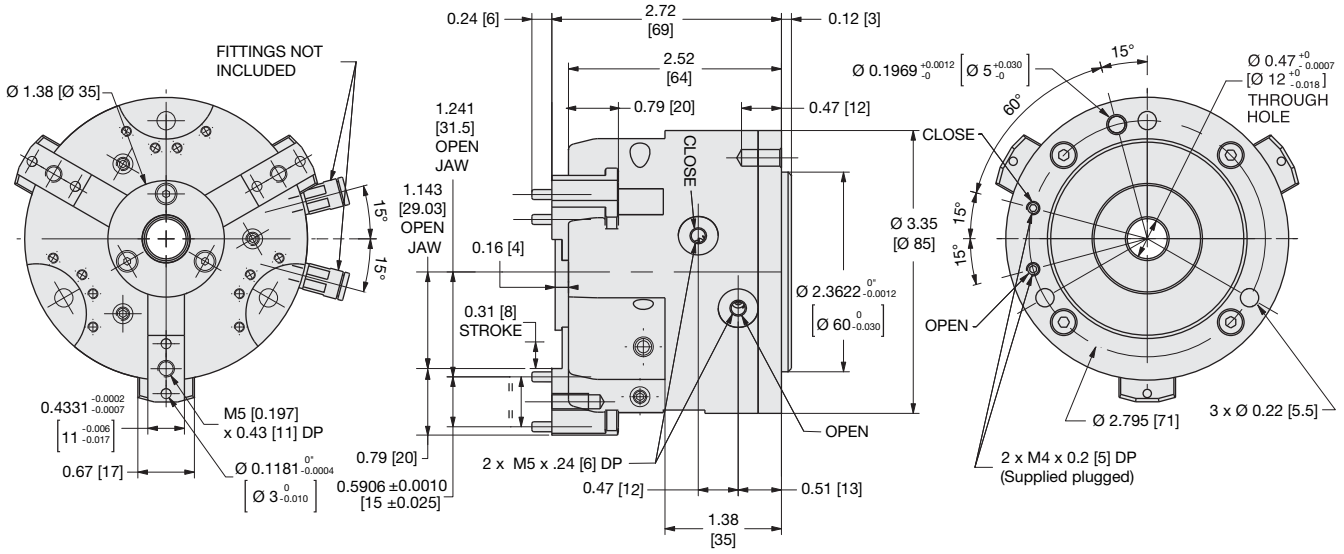
PARALLEL GRIPPERS PPC-12-C
THROUGH HOLE SERIES

Grippers are supplied with open side air ports and top manifold air ports plugged. Top manifold sealing dimensions shown.



Specifications	PPC-12-C	
Total Rated Grip Force @ 100 psi, 7 bar	201 lbs.*	896 N*
Total Stroke	0.630 in.	16 mm
Weight	2.4 lbs.	1.1 Kg
Pressure Range without Springs	30-100 psi	2-7 bar
Pressure Range with Springs	45-100 psi	3-7 bar
Cylinder Bore Ø	2.48 in.	63 mm
Displacement	1.40 in^3.	23 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.03 sec.	0.03 sec.
Repeatability	±0.0008 in.	±0.02 mm

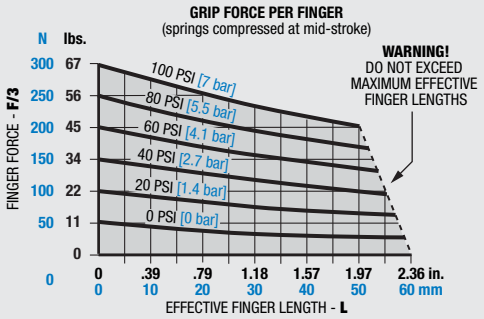
*with Option RE or RI

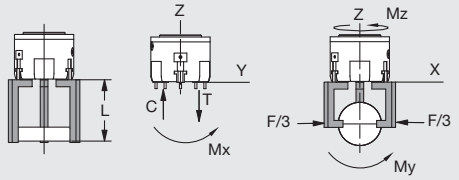


UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information





Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	214 lbs. [950 N]	49 lbs. [220 N]
Maximum Compressive **C**	281 in.-lbs. [1250 N]	49 lbs. [220 N]
Maximum Moment **Mx**	177 in.-lbs. [20 Nm]	53 in.-lbs. [6 Nm]
Maximum Moment **My**	177 in.-lbs. [20 Nm]	53 in.-lbs. [6 Nm]
Maximum Moment **Mz**	531 in.-lbs. [60 Nm]	89 in.-lbs. [10 Nm]

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — EXTENDED STROKE

PPC-12-__-C-V

SAFETY SPRINGS (See below) — VITON® SEALS

SAFETY SPRINGS **RE** External Clamping
RI Internal Clamping
__ Leave Blank. No Spring Option (standard)

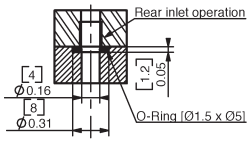
SENSOR ACCESSORIES	Order #	QTY/UNIT
Inductive Sensor Holder Kit (1 Holder,1 Flag, 2 Spacers)	**OSMK-105**	**1 to 2**
Inductive NPN Sensor M8 with Quick Disconnect	**OISN-011**	**1 to 4**
Inductive PNP Sensor M8 with Quick Disconnect	**OISP-011**	**1 to 4**
Quick Disconnect 2 Meter Cable Length	**CABL-010**	**1 to 6**
Quick Disconnect 5 Meter Cable Length	**CABL-013**	**1 to 6**
PNEUMATIC ACCESSORIES		
Standard Seal Repair Kit	**SLKT-207**	**1**
Viton® Seal Repair Kit	**SLKT-207V**	**1**

Detailed sensor information at the end of this section.

PARALLEL GRIPPERS PPC-25
THROUGH HOLE SERIES

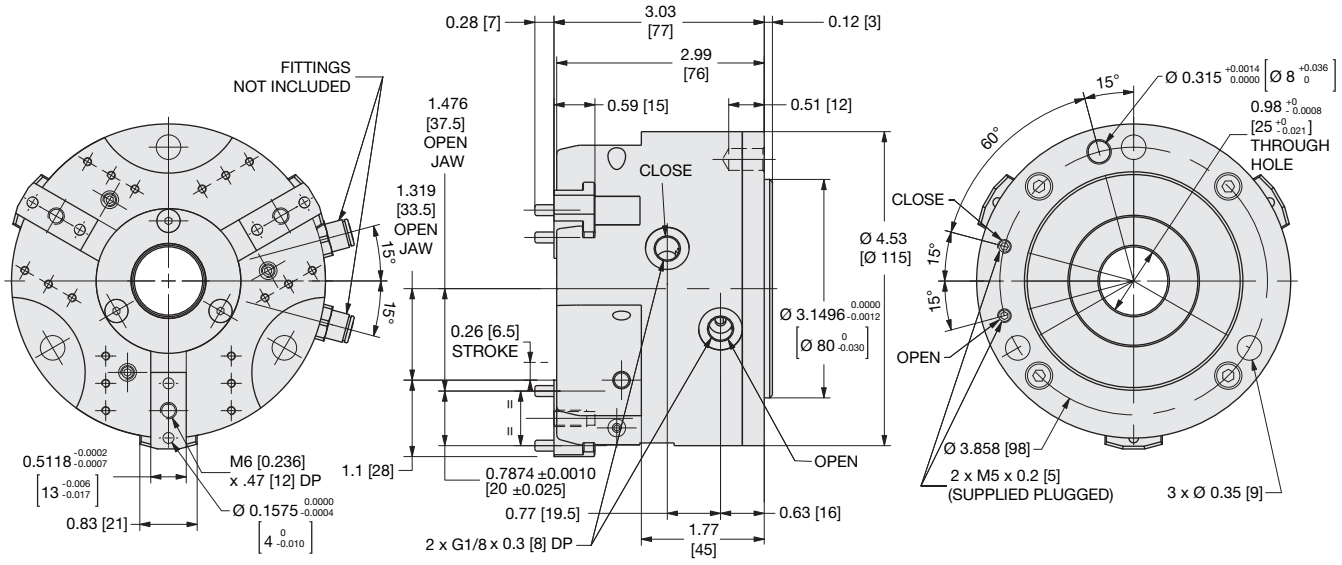
Robohand

Grippers are supplied with open side air ports and top manifold air ports plugged. Top manifold sealing dimensions shown.



Specifications	PPC-25	
Total Rated Grip Force @ 100 psi, 7 bar	589 lbs.*	2620 N*
Total Stroke	0.512 in.	13 mm
Weight	4.9 lbs.	2.2 Kg
Pressure Range without Springs	30-100 psi	2-7 bar
Pressure Range with Springs	45-100 psi	3-7 bar
Cylinder Bore Ø	3.35 in.	85 mm
Displacement	3.11 in³.	51 cm³
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.04 sec.	0.04 sec.
Repeatability	±0.0008 in.	±0.02 mm

*with Option RE or RI



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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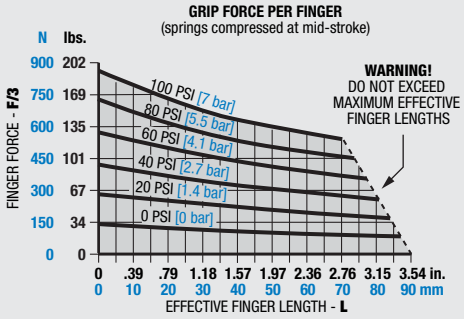
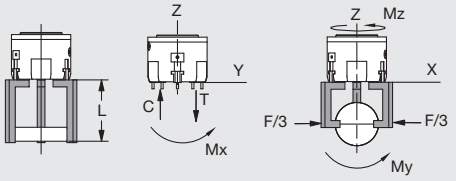




Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	292 lbs. [1300 N]	88 lbs. [390 N]
Maximum Compressive **C**	337 lbs. [1500 N]	88 lbs. [390 N]
Maximum Moment **Mx**	266 in.-lbs. [30 Nm]	115 in.-lbs. [13 Nm]
Maximum Moment **My**	266 in.-lbs. [30 Nm]	115 in.-lbs. [13 Nm]
Maximum Moment **Mz**	575 in.-lbs. [65 Nm]	221 in.-lbs. [25 Nm]

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — VITON® SEALS

PPC-25 - ___ - V

SAFETY SPRINGS (See below)

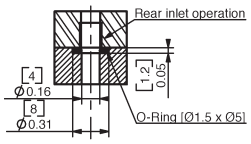
SAFETY SPRINGS **RE** External Clamping
RI Internal Clamping
__ Leave Blank. No Spring Option (standard)

SENSOR ACCESSORIES	Order #	QTY/UNIT
Inductive Sensor Holder Kit (1 Holder,1 Flag, 2 Spacers)	**OSMK-106**	**1 to 2**
Inductive NPN Sensor M8 with Quick Disconnect	**OISN-011**	**1 to 4**
Inductive PNP Sensor M8 with Quick Disconnect	**OISP-011**	**1 to 4**
Quick Disconnect 2 Meter Cable Length	**CABL-010**	**1 to 6**
Quick Disconnect 5 Meter Cable Length	**CABL-013**	**1 to 6**
PNEUMATIC ACCESSORIES		
Standard Seal Repair Kit	**SLKT-208**	**1**
Viton® Seal Repair Kit	**SLKT-208V**	**1**

Detailed sensor information at the end of this section.

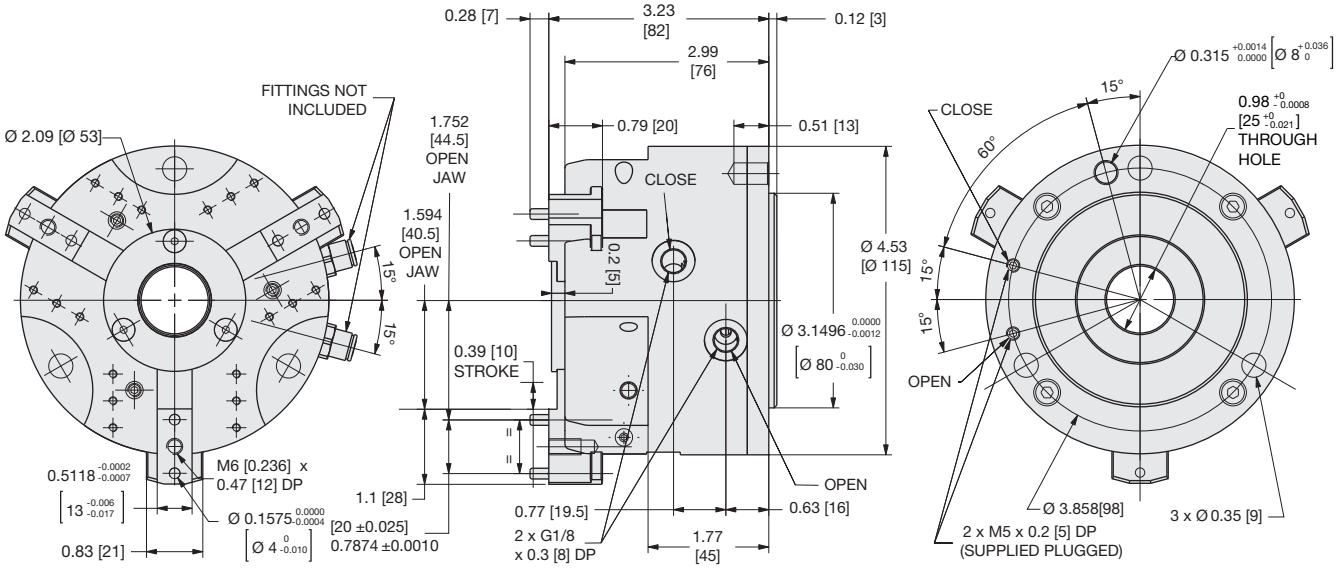
PARALLEL GRIPPERS PPC-25-C
THROUGH HOLE SERIES

Grippers are supplied with open side air ports and top manifold air ports plugged. Top manifold sealing dimensions shown.



Specifications	PPC-25-C	
Total Rated Grip Force @ 100 psi, 7 bar	369 lbs.*	1642 N*
Total Stroke	0.787 in.	20 mm
Weight	5.1 lbs.	2.3 Kg
Pressure Range without Springs	30-100 psi	2-7 bar
Pressure Range with Springs	45-100 psi	3-7 bar
Cylinder Bore Ø	3.35 in.	85 mm
Displacement	3.11 in^3.	51 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.04 sec.	0.04 sec.
Repeatability	±0.0008 in.	±0.02 mm

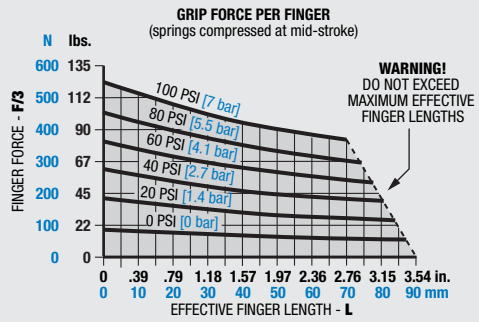
*with Option RE or RI

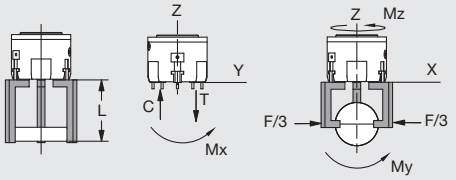


UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information





Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	292 lbs. [1300 N]	88 lbs. [390 N]
Maximum Compressive **C**	337 lbs. [1500 N]	88 lbs. [390 N]
Maximum Moment **Mx**	266 in.-lbs. [30 Nm]	115 in.-lbs. [13 Nm]
Maximum Moment **My**	266 in.-lbs. [30 Nm]	115 in.-lbs. [13 Nm]
Maximum Moment **Mz**	620 in.-lbs. [70 Nm]	221 in.-lbs. [25 Nm]

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — EXTENDED STROKE

PPC-25 - ___ - C - V

SAFETY SPRINGS (See below) — VITON® SEALS

SAFETY SPRINGS **RE** External Clamping
RI Internal Clamping
__ Leave Blank. No Spring Option (standard)

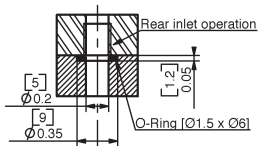
SENSOR ACCESSORIES	Order #	QTY/UNIT
Inductive Sensor Holder Kit (1 Holder,1 Flag, 2 Spacers)	**OSMK-106**	**1 to 2**
Inductive NPN Sensor M8 with Quick Disconnect	**OISN-011**	**1 to 4**
Inductive PNP Sensor M8 with Quick Disconnect	**OISP-011**	**1 to 4**
Quick Disconnect 2 Meter Cable Length	**CABL-010**	**1 to 6**
Quick Disconnect 5 Meter Cable Length	**CABL-013**	**1 to 6**
PNEUMATIC ACCESSORIES		
Standard Seal Repair Kit	**SLKT-208**	**1**
Viton® Seal Repair Kit	**SLKT-208V**	**1**

Detailed sensor information at the end of this section.

PARALLEL GRIPPERS PPC-34
THROUGH HOLE SERIES

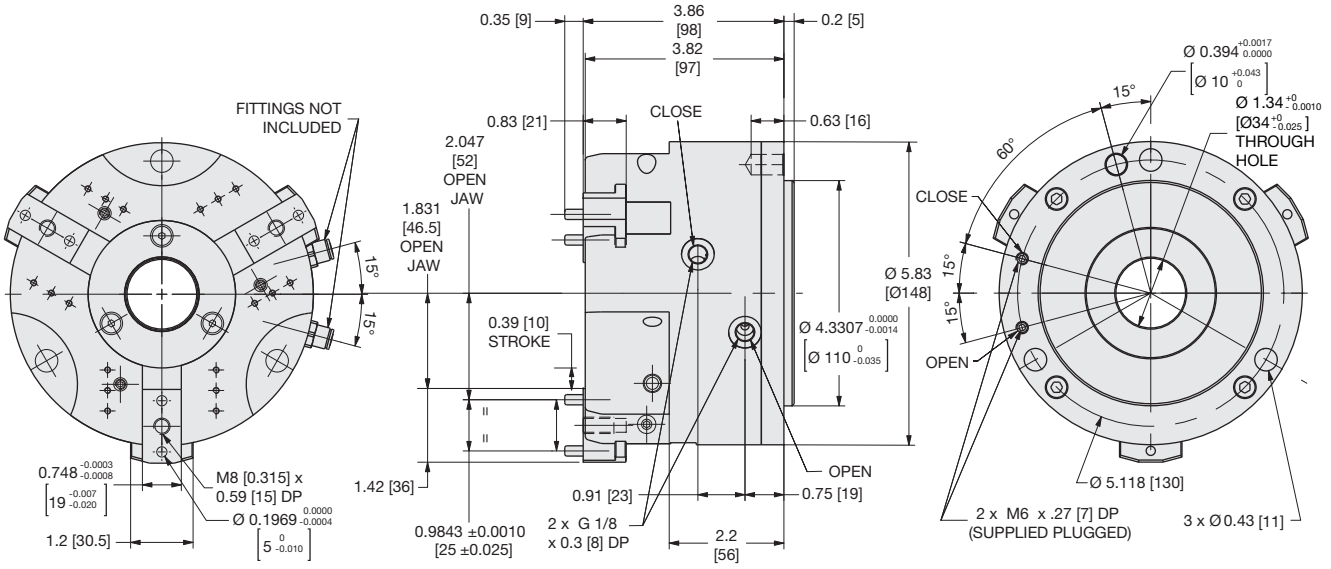
Robohand

Grippers are supplied with open side air ports and top manifold air ports plugged. Top manifold sealing dimensions shown.



Specifications	PPC-34	
Total Rated Grip Force @ 100 psi, 7 bar	974 lbs.*	4332 N*
Total Stroke	0.787 in.	20 mm
Weight	11.2 lbs.	5.1 Kg
Pressure Range without Springs	30-100 psi	2-7 bar
Pressure Range with Springs	45-100 psi	3-7 bar
Cylinder Bore Ø	4.33 in.	110 mm
Displacement	7.81 in^3	128 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.06 sec.	0.06 sec.
Repeatability	±0.0008 in.	±0.02 mm

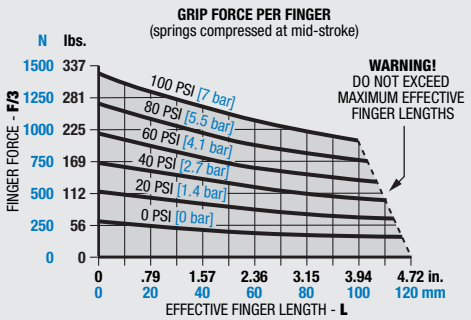
*with Option RE or RI

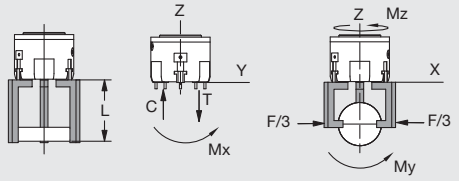


UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information





Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	438 lbs. [1950 N]	146 lbs. [650 N]
Maximum Compressive **C**	483 lbs. [2150 N]	146 lbs. [650 N]
Maximum Moment **Mx**	575 in.-lbs. [65 Nm]	283 in.-lbs. [32 Nm]
Maximum Moment **My**	575 in.-lbs. [65 Nm]	283 in.-lbs. [32 Nm]
Maximum Moment **Mz**	885 in.-lbs. [100 Nm]	487 in.-lbs. [55 Nm]

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — VITON® SEALS

PPC-34 - ___ - V

SAFETY SPRINGS (See below)

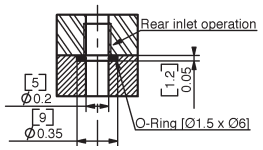
SAFETY SPRINGS **RE** External Clamping
RI Internal Clamping
__ Leave Blank. No Spring Option (standard)

SENSOR ACCESSORIES	Order #	QTY/UNIT
Inductive Sensor Holder Kit (1 Holder,1 Flag, 2 Spacers)	**OSMK-107**	**1 to 2**
Inductive NPN Sensor M8 with Quick Disconnect	**OISN-011**	**1 to 4**
Inductive PNP Sensor M8 with Quick Disconnect	**OISP-011**	**1 to 4**
Quick Disconnect 2 Meter Cable Length	**CABL-010**	**1 to 6**
Quick Disconnect 5 Meter Cable Length	**CABL-013**	**1 to 6**
PNEUMATIC ACCESSORIES		
Standard Seal Repair Kit	**SLKT-209**	**1**
Viton® Seal Repair Kit	**SLKT-209V**	**1**

Detailed sensor information at the end of this section.

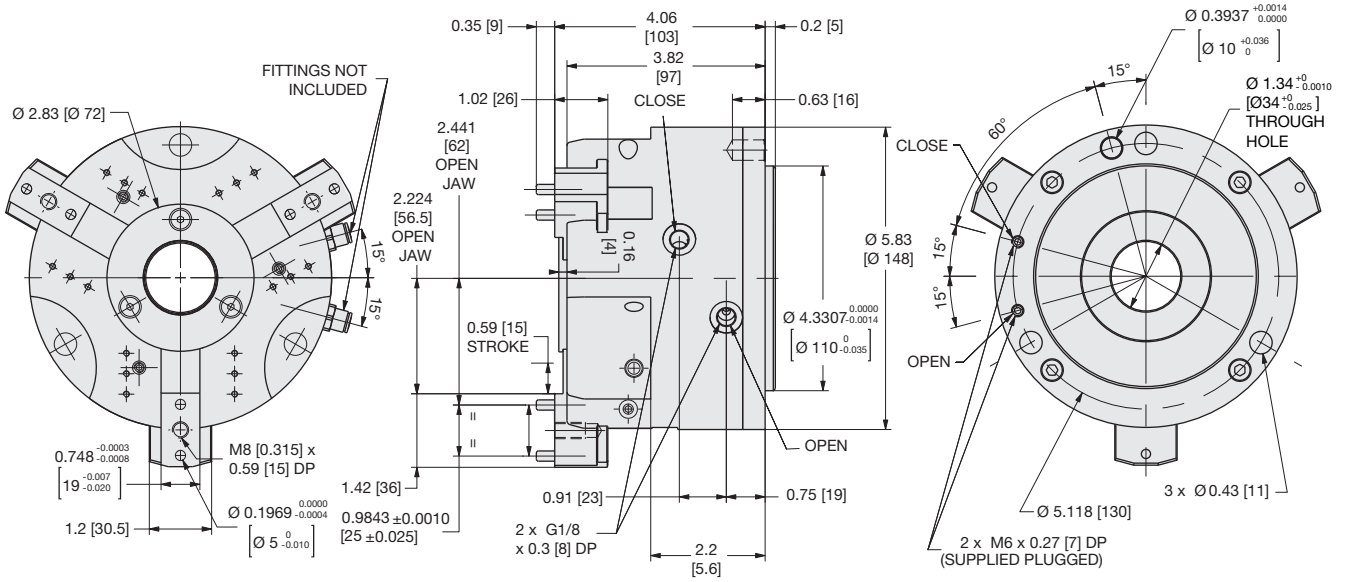
PARALLEL GRIPPERS PPC-34-C
THROUGH HOLE SERIES

Grippers are supplied with open side air ports and top manifold air ports plugged. Top manifold sealing dimensions shown.



Specifications	PPC-34-C	
Total Rated Grip Force @ 100 psi, 7 bar	638 lbs.*	2838 N*
Total Stroke	1.181 in.	30 mm
Weight	11.7 lbs.	5.3 Kg
Pressure Range without Springs	30-100 psi	2-7 bar
Pressure Range with Springs	45-100 psi	3-7 bar
Cylinder Bore Ø	4.33 in.	110 mm
Displacement	7.81 in³.	128 cm³
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.06 sec.	0.06 sec.
Repeatability	±0.0008 in.	±0.02 mm

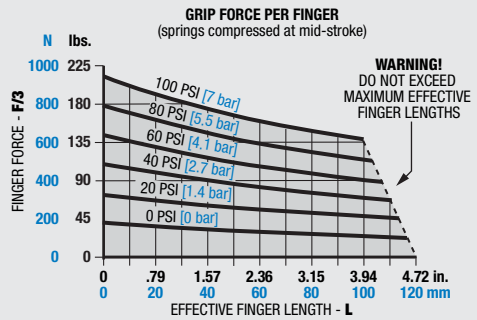
*with Option RE or RI

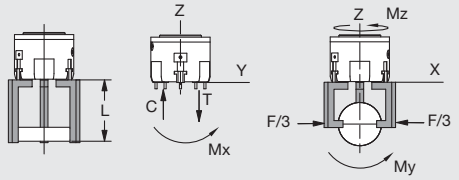


UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information





Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	438 lbs. [2150 N]	146 lbs. [650 N]
Maximum Compressive **C**	528 lbs. [2350 N]	146 lbs. [650 N]
Maximum Moment **Mx**	575 in.-lbs. [65 Nm]	283 in.-lbs. [32 Nm]
Maximum Moment **My**	575 in.-lbs. [65 Nm]	283 in.-lbs. [32 Nm]
Maximum Moment **Mz**	1062 in.-lbs. [120 Nm]	487 in.-lbs. [55 Nm]

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — EXTENDED STROKE

PPC-34 - ___ - C - V

SAFETY SPRINGS (See below) — VITON® SEALS

SAFETY SPRINGS **RE** External Clamping
RI Internal Clamping
__ Leave Blank. No Spring Option (standard)

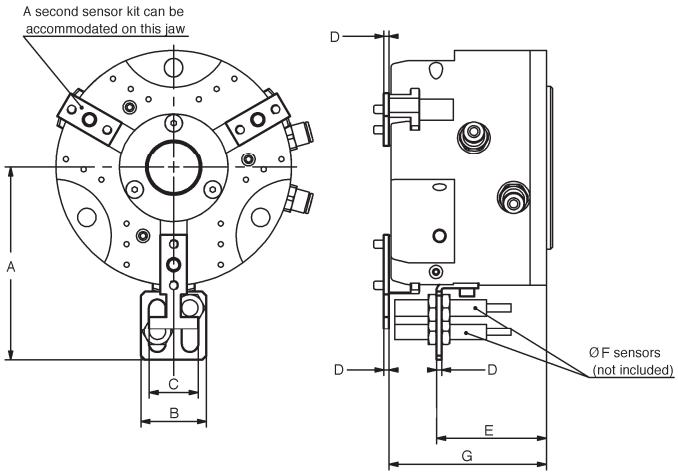
SENSOR ACCESSORIES	Order #	QTY/UNIT
Inductive Sensor Holder Kit (1 Holder,1 Flag, 2 Spacers)	**OSMK-107**	**1 to 2**
Inductive NPN Sensor M8 with Quick Disconnect	**OISN-011**	**1 to 4**
Inductive PNP Sensor M8 with Quick Disconnect	**OISP-011**	**1 to 4**
Quick Disconnect 2 Meter Cable Length	**CABL-010**	**1 to 6**
Quick Disconnect 5 Meter Cable Length	**CABL-013**	**1 to 6**
PNEUMATIC ACCESSORIES		
Standard Seal Repair Kit	**SLKT-209**	**1**
Viton® Seal Repair Kit	**SLKT-209V**	**1**

Detailed sensor information at the end of this section.

SENSOR ACCESSORIES

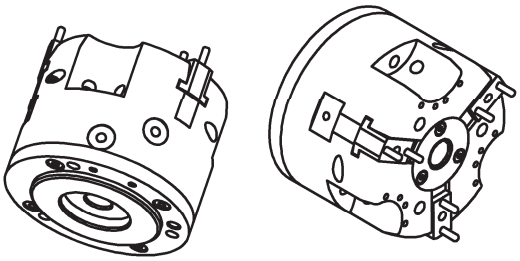
Accessory (OSMK): Inductive Sensor Holders

Each kit allows sensing up to 2 jaw positions: open jaws, closed jaws. or part present. Two kits can be used on each gripper al lowing sensing up to 4 positions. The accessory (OSMK) comes with 1 sensor holder, 1 flag, 2 spacers and screws for mounting.The sensors are not inc luded.

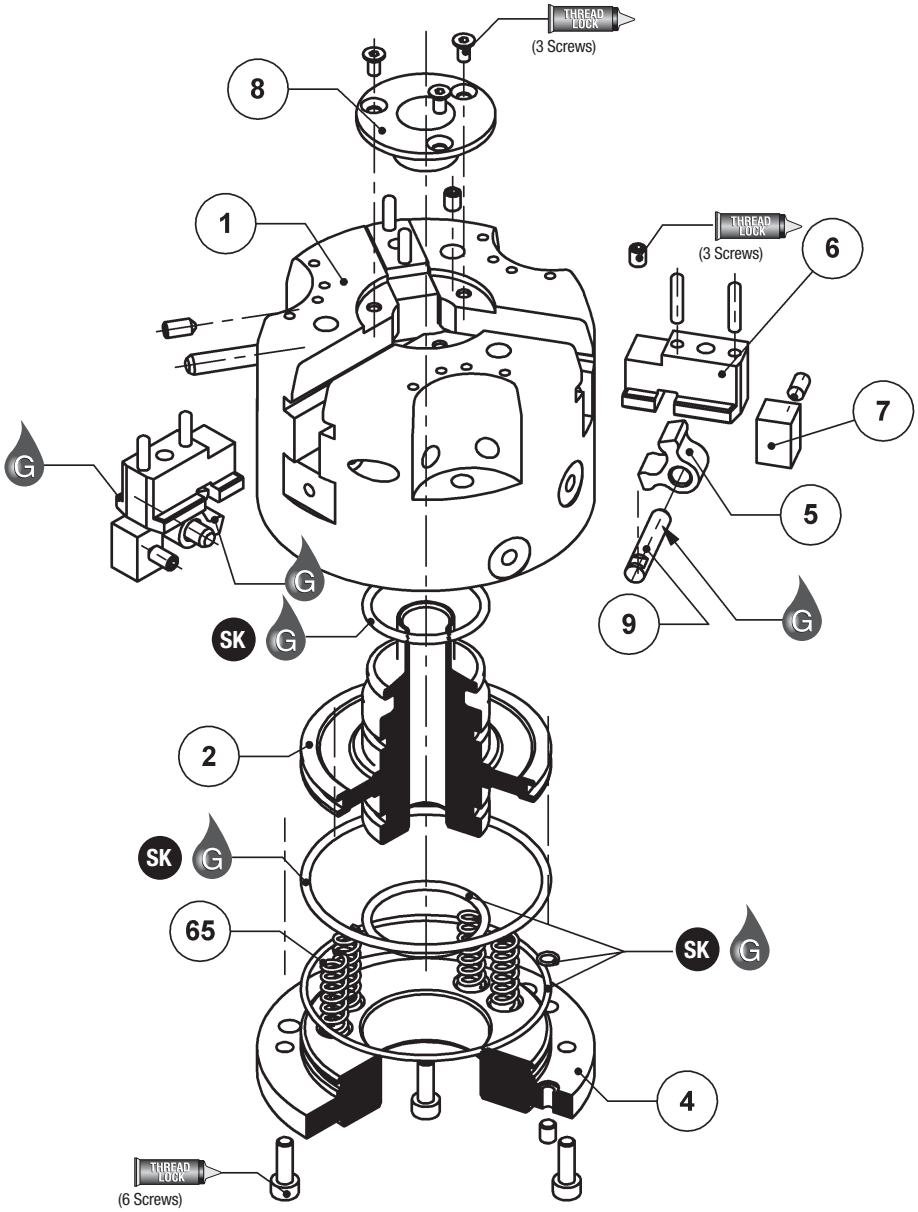


	A	B	C	D	E	F	G
PPC-12	3.13 [79.5]	1.26 [32]	0.95 [24]	0.1 [2.5]	1.72 [43.75]	M8	2.56 [65]
PPC-12-C	3.13 [79.5]	1.26 [32]	0.95 [24]	0.1 [2.5]	1.72 [43.75]	M8	2.72 [69]
PPC-25	3.72 [94.5]	1.26 [32]	0.95 [24]	0.1 [2.5]	2.12 [53.75]	M8	3.03 [77]
PPC-25-C	3.72 [94.5]	1.26 [32]	0.95 [24]	0.1 [2.5]	2.12 [53.75]	M8	3.23 [82]
PPC-34	4.69 [119]	1.26 [32]	0.95 [24]	0.1 [2.5]	2.84 [72.05]	M8	3.86 [98]
PPC-34-C	4.69 [119]	1.26 [32]	0.95 [24]	0.1 [2.5]	2.84 [72.05]	M8	4.06 [103]

PPC Series Exploded View



Item	Qty	Name
01	1	Body
02	1	Cam Driver Piston
04	1	Cap
05	3	Cam Lever
06	3	Jaw
07	3	Cover
08	1	Shielded Case
09	3	Pivot Pin
65	6	Springs



NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

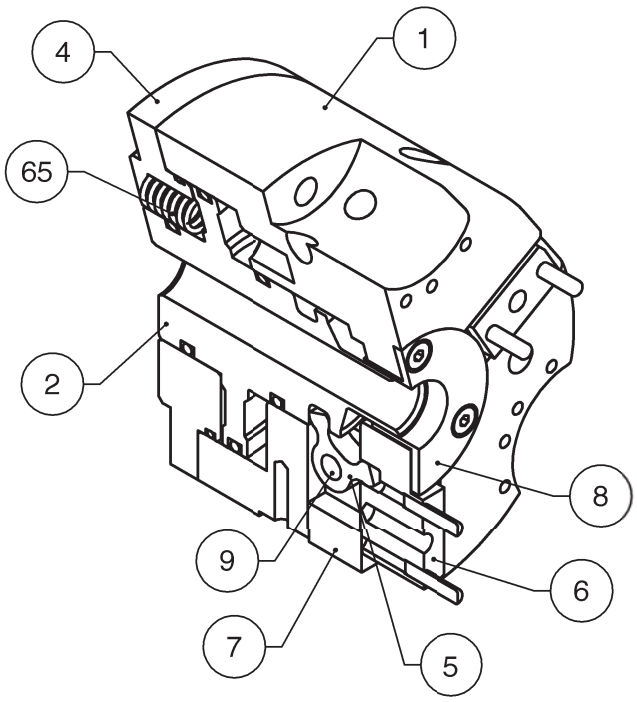
Assembly Procedure

1) Lubricate and install the seals onto the cam driver piston
2) Lubricate and install the seals into the cap
3) Plug rear ports in the cap if rear inlets are not used. If rear inlets are used, plug body ports.
4) Insert the piston into body. Place springs into counterbore holes between the body and the piston for -**RE** option or between the piston and the cap for -**RI** option
5) Assemble the cap
6) Insert together the jaw and the cam lever into the body
7) Insert the pivot pin aligning cam lever hole. Screw SS Screw into the body for preventing pivot pin from moving
8) Assemble the cover
9) Assemble the shielded case

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon™ Based Grease | GLUE Super Bonder | Third Angle Projection

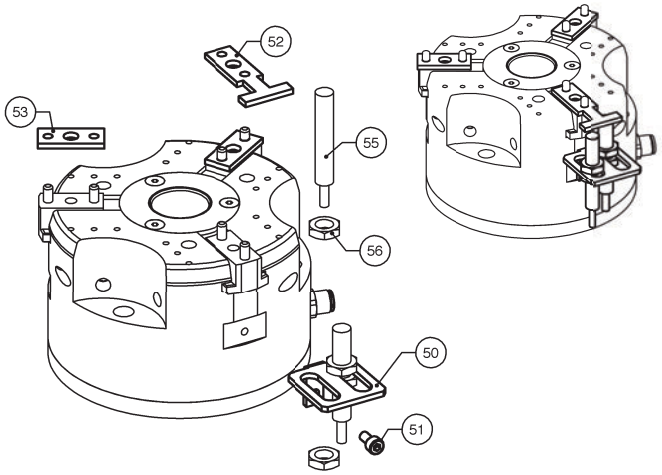
PPC SERIES ASSEMBLED VIEW



Item	Qty	Name
01	1	Body
02	1	Cam Driver Piston
04	1	Cap
05	3	Cam Lever
06	3	Jaw
07	3	Cover
08	1	Shielded Case
09	3	Pivot Pin
65	6	Springs

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

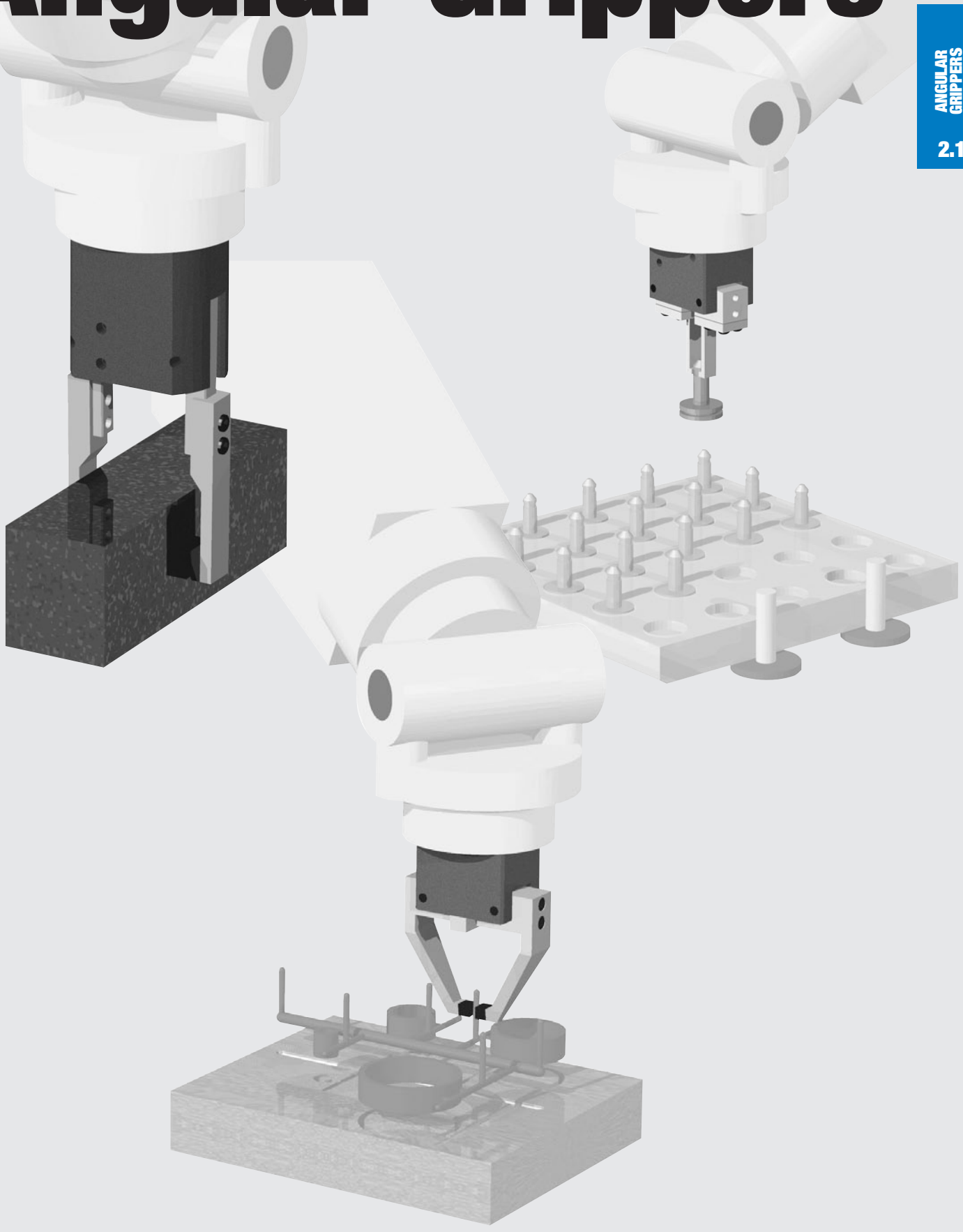
Accessory Installation & Adjustment Instructions



Installation-Inductive Sensor

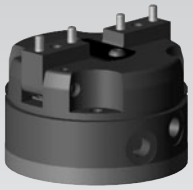
1) Assemble the sensor holder (#50) onto the gripper
2) Place the flag (#52) on one of the jaws above the sensor holder
3) Place the spacer (#53) on the other jaws
4) Position sensor for desired stroke position
5) Tighten sensor locking nuts (#56) to hold sensor depth
6) Repeat these operations in case of the use of two sensors holders

Angular Grippers



Angular Motion Gripper Product Overview

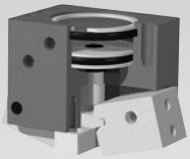
RUA/DUA Series
DIRECTCONNECT
Angular Gripper



- 2-Jaw Angular Gripper
- Features DIRECTCONNECT mounting (sizes 62-112)
- Spring Assist
- Pneumatic or Hydraulic Operation
- Available in Two Strokes
- Optional Magneto Resistive Sensors (except -142 & -162)

See Page 2.4

RA
Cam Driven Series
RA-5, 6, 7, 8 DESIGN ADVANTAGES



- Inexpensive
- Adjustable stroke
- Rugged design

RA-10 DESIGN ADVANTAGES
- Extremely small (1in.) and lightweight (1 oz.)
- Inexpensive

See Page 2.18

RA
Failsafe, Toggle Locking Series

- Failsafe mechanical locking mechanism
- High grip force-to-size ratio
- Rugged design

See Page 2.30

DCT/CT Series
DIRECTCONNECT
180° Angular Gripper

- 180° of travel (Optional Adjustable Stop)
- Features DIRECTCONNECT mounting (sizes 12-25)
- Sealed design protects internal components from chips and other particulate
- Optional Resistive or Inductive Sensors

See Page 2.36

DCT-RE/CT-RE Series
DIRECTCONNECT
180° Failsafe Angular Gripper

- 180° of travel (Optional Adjustable Stop)
- Spring Assist
- Features DIRECTCONNECT mounting (sizes 12-25)
- Sealed design protects internal components from chips and other particulate
- Optional Magneto Resistive or Inductive Sensors

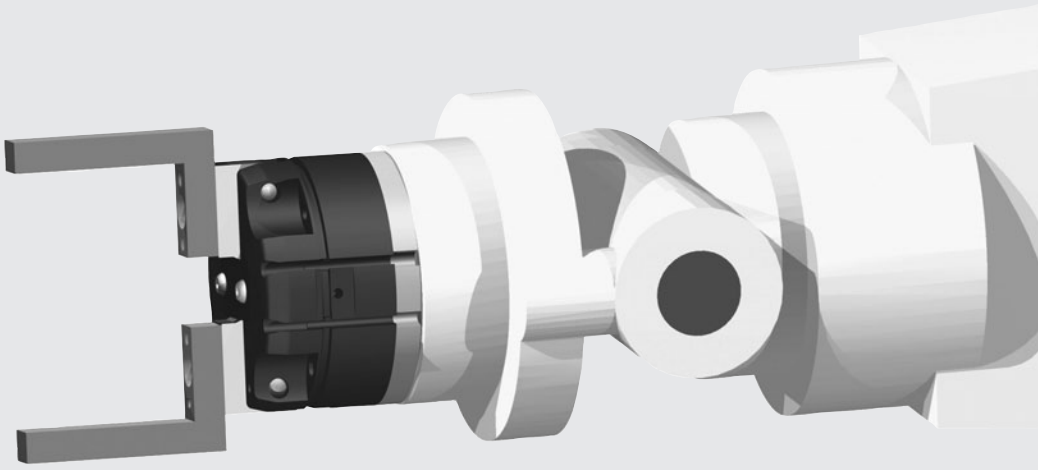
See Page 2.48

Robohand Angular Gripper Product Selector

Model #	Two Jaws	Three Jaws	Stroke Range: 12 Degrees	Stroke Range: 30 Degrees	Stroke Range: 180 Degrees	Total Grip Force: 1 - 10 lbs. [0.45 - 45Kg]	Total Grip Force: 10 - 25 lbs. [45 - 111Kg]	Total Grip Force: 25 - 50 lbs. [111 - 223Kg]	Total Grip Force: 50 - 100 lbs. [223 - 445Kg]	Total Grip Force: 100 - 500 lbs [445 - 2225Kg]	Total Grip Force: 500 - 3000 lbs. [2225 - 13350Kg]	Maximum Finger Length @ 60 PSI: 0 - 2 in [0 - 50.8mm]	Maximum Finger Length @ 60 PSI: 2 - 4 in [50.8 - 102mm]	Maximum Finger Length @ 60 PSI: 4 - 6 in [102 - 152mm]	Maximum Finger Length @ 60 PSI: 6 - 8 in [152 - 203mm]	Maximum Finger Length @ 60 PSI: 8 - 10 in [203 - 254mm]	Maximum Finger Length @ 60 PSI: 10 - 12 in [254 - 305mm]	Maximum Finger Length @ 60 PSI: 12 - 14 in [305 - 356mm]	Maximum Finger Length @ 60 PSI: 14 - 16 in [356 - 406mm]	Maximum Finger Length @ 60 PSI: 16 - 18 in [406 - 457mm]	Maximum Finger Length @ 60 PSI: 18 - 20 in [457 - 508mm]	Maximum Finger Length @ 60 PSI: 20 in.+ [508mm+]	Actuation Time: 0.05 - 0.1 sec.	Actuation Time: 0.1 - 0.5 sec.	Actuation Time: 0.5 - 0.75 sec.	Actuation Time: 0.75 - 1 sec	Operating Pressure: 5 - 100 psi [0.3 - 7 bar]	Operating Pressure: 20 - 100 psi [1.5 - 7 bar]	Operating Pressure: 40 - 100 psi [3 - 7 bar]	Operating Pressure: 50 - 100 psi [3.5 - 7 bar]	Operating Pressure: 70 - 150 psi [5 - 7 bar]	Environment: Clean Room Environment	Environment: Normal Environment	Environment: Harsh/Dirty Environment	Failsafe Operation	Inductive Sensors	Magneto Resistive Sensors	Double Acting Cylinder	Single Acting/Spring Return	Double Acting/Spring Assist	Non-Synchronous Option
CYLINDRICAL DESIGN																																								
RUA/DUA-62	•			•		■						■												■				•				•	•		•	•	•	•	•	•
RUA/DUA-82	•			•			■					■	■											■				•				•	•		•	•	•	•	•	•
RUA/DUA-112	•			•				■				■	■	■										■				•				•	•		•	•	•	•	•	•
RUA/DUA-142	•			•					■			■	■	■	■									■				•				•	•		•		•	•	•	•
RUA/DUA-162	•			•					■			■	■	■	■									■				•				•	•		•		•	•	•	•
CAM DRIVEN DESIGN																																								
RA-5	•			•		■						■												■				•				•			•			•		
RA-6	•			•		■	■					■												■				•				•			•			•		
RA-7	•			•		■	■	■				■												■				•				•			•			•		
RA-8	•			•		■	■	■				■	■											■				•				•			•			•		
RA-10	•			•		■						■												■				•				•			•			•		
FAILSAFE-TOGGLE																																								
RA-15	•		•			■	■					■												■				•				•			•	•		•		
RA-25	•		•			■	■	■				■												■				•				•			•	•		•		
180° DESIGN																																								
DCT-12	•				•	■						■																•				•	•		•			•		
DCT-16	•				•		■					■												■				•				•	•		•			•		
DCT-20	•				•			■				■												■				•				•	•		•			•		
DCT-25	•				•				■			■												■				•				•	•		•			•		
CT-32	•				•					■		■	■											■				•				•	•		•			•		
CT-40	•				•					■		■	■	■										■				•				•	•		•			•		
CT-50	•				•					■		■	■	■	■									■				•				•	•		•			•		
180° FAILSAFE DESIGN																																								
DCT-12-RE	•				•	■						■																•				•	•		•	•		•	•	•
DCT-16-RE	•				•		■					■												■				•				•	•		•	•		•	•	•
DCT-20-RE	•				•			■				■												■				•				•	•		•	•		•	•	•
DCT-25-RE	•				•				■			■												■				•				•	•		•	•		•	•	•
CT-32-RE	•				•					■		■	■											■				•				•	•		•	•		•	•	•
CT-40-RE	•				•					■		■	■	■										■				•				•	•		•	•		•	•	•
CT-50-RE	•				•					■		■	■	■	■									■				•				•	•		•	•		•	•	•

Angular Grippers - Cylindrical Spring Assist Series

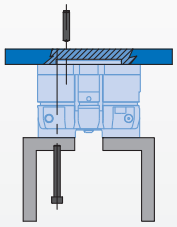
- **Cost effective:** The simplified drive mechanism makes these grippers an excellent value
- **Compact, robust & powerful gripper:** This gripper is designed for use in confined spaces, combining large opening angle with a high torque. Optional safety springs retain the components, should the air supply fail or to increase grip force.
- **Multipurpose gripper:** A wide range of options and accessories (hydraulic or pneumatic operation, safety springs for internal or external clamping, Viton® seals, and magneto resistive or inductive sensing) allow these grippers to be used in a number of applications.
- **Harsh environment:** Shielded design repels chips and other particulate from internal drive mechanism



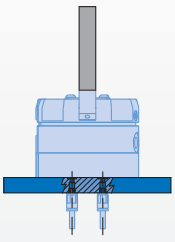
Mounting Information:

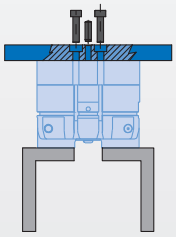
Grippers can be mounted & operated in any orientation

Gripper is located using pilot boss and a dowel pin and assembled with 4 through body screws.

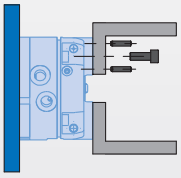


Gripper can be operated utilizing top manifold air ports.





DirectConnect Body mounts with 4 screws and locates with 2 slip fit dowel pins.



Fingers are located on jaws with 2 dowel pins and assembled with 1 screw.

Technical Specifications:

Specifications	Imperial	Metric
Pneumatic Pressure Operating Range:		
Standard	30-100 psi	2-7 bar
with **-RE, -RI** Spring Option	45-100 psi	3-7 bar
Hydraulic Pressure Operating Range:**		
Hydraulic	30-290 psi	2-20 bar
with **-RE, -RI** Spring Option	45-290 psi	3-20 bar
Cylinder Type	Double Acting or Single Acting Spring Return or Double Acting Spring Assist	
Dynamic Seals	Internally Lubricated Buna-N	
Valve Required to Operate	4-way, 2-position for Double Acting *or* 3-way, 2-position for Single Acting	
Air Quality Requirements		
Air Filtration	40 Micron or Better	
Air Lubrication	Not Necessary*	
Air Humidity	Low Moisture Content (dry)	
Temperature Operating Range		
Viton® Seals	-20°~300° F	-30°~150° C
Maintenance Specifications†		
Expected Life		
Normal Application	5 million cycles	
w/ Preventative Maintenance	10+ million cycles*	
Field Repairable	Yes	
Seal Repair Kits Available	Yes	

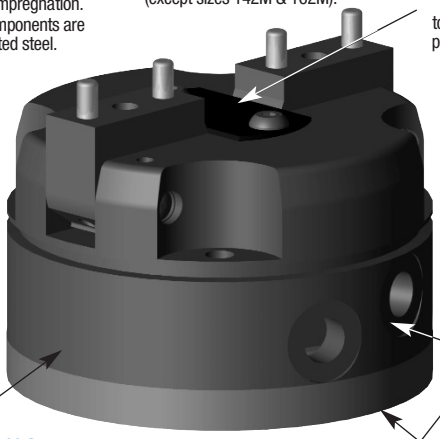
*Addition of lubrication will greatly increase service life
†See Maintenance Section
** The gripper can be operated at 290psi (20 bars) MAXIMUM hydraulic pressure. Cycle times are longer and may depend on the hydraulic system. Grippers must be mounted before being operated under hydraulic pressure. Please contact factory for more information.

Product Features

Quality Components
Made of Aluminum alloy, hard coat anodized with Teflon Impregnation. The gripper's main components are made of heat treated steel.

Gripper Attachment
From the top or from the back using DirectConnect pattern (except sizes 142M & 162M).

Shielded Case and Covers
Gripper is shielded to repel chips and other particulate from internal drive mechanism.



Hydraulic Operation
Optional hydraulic seals for 290 psi [20 bar] Max. operation

Viton® Seals
Standard Viton® seals for high temperatures (-20°F to +300°F)

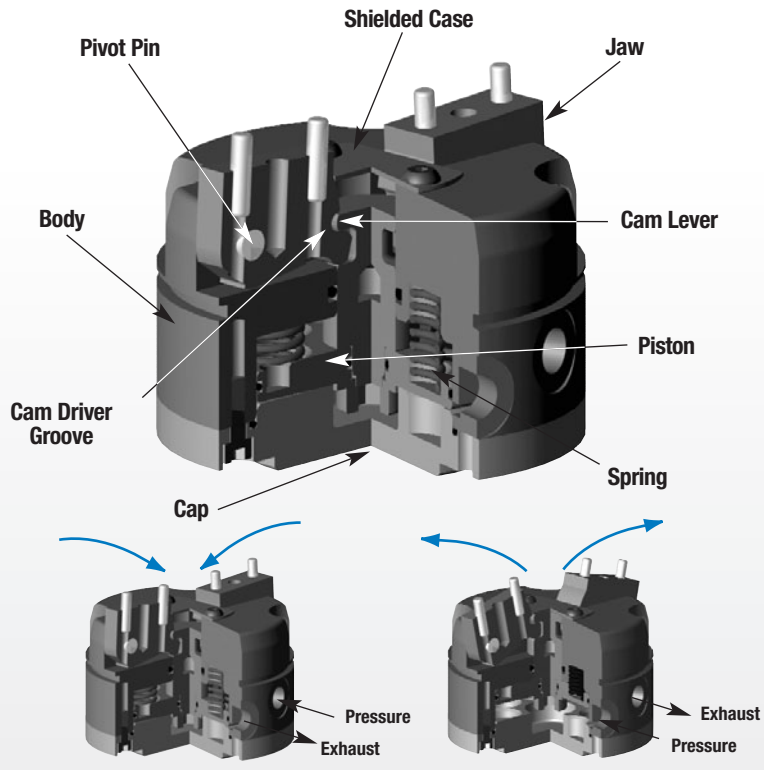
Multiple Ports
Side or top manifold ports

Safety Springs
Optional springs retain the component, should the air supply fail, to assist the gripper for internal (-RI) or external (-RE) gripping, or in single acting or spring assist mode

Magneto Resistive Sensing
The gripper comes with adjustable slots for 2 magnetic sensors. (to control jaw position). Must be used with -RE or -RI option. (Except sizes 142M & 162M)

Integrated Inductive Sensor
An integrated sensor (KT1 or KT2 option) allows to sense jaws in open or closed position

Operating Principle



- A double acting piston, connected to a cam driver with a groove, drives the cams levers.
- The piston's translatory motion makes the cams levers rotate in a synchronous motion.
- Optional springs can be used to increase the grip force, to hold part in the event of loss of air, or to use the gripper in single acting mode.
- This gripper is suitable for internal or external gripping.

Style -RUA/DUA Angular Gripper

Size -62M

Style:	**RUA-62M**	
Stroke:	33.6°	
Grip Force:*	86 lbs	384 N
Weight:	0.86 lbs	0.39 Kg

See Page **2.6**

Style -RUA/DUA Angular Gripper

Size -82M

Style:	**RUA-82M**	
Stroke:	31.8°	
Grip Force:*	276 lbs	1228 N
Weight:	1.54 lbs	0.70 Kg

See Page **2.8**

Style -RUA/DUA Angular Gripper

Size -112M

Style:	**RUA-112M**	
Stroke:	38.2°	
Grip Force:*	483 lbs	2150 N
Weight:	3.75 lbs	1.70 Kg

See Page **2.10**

Style -RUA Angular Gripper

Size -142M

Style:	**RUA-142M**	
Stroke:	35.2°	
Grip Force:*	1298 lbs	5775 N
Weight:	9.05 lbs	4.1 Kg

See Page **2.12**

Style -RUA Angular Gripper

Size -162M

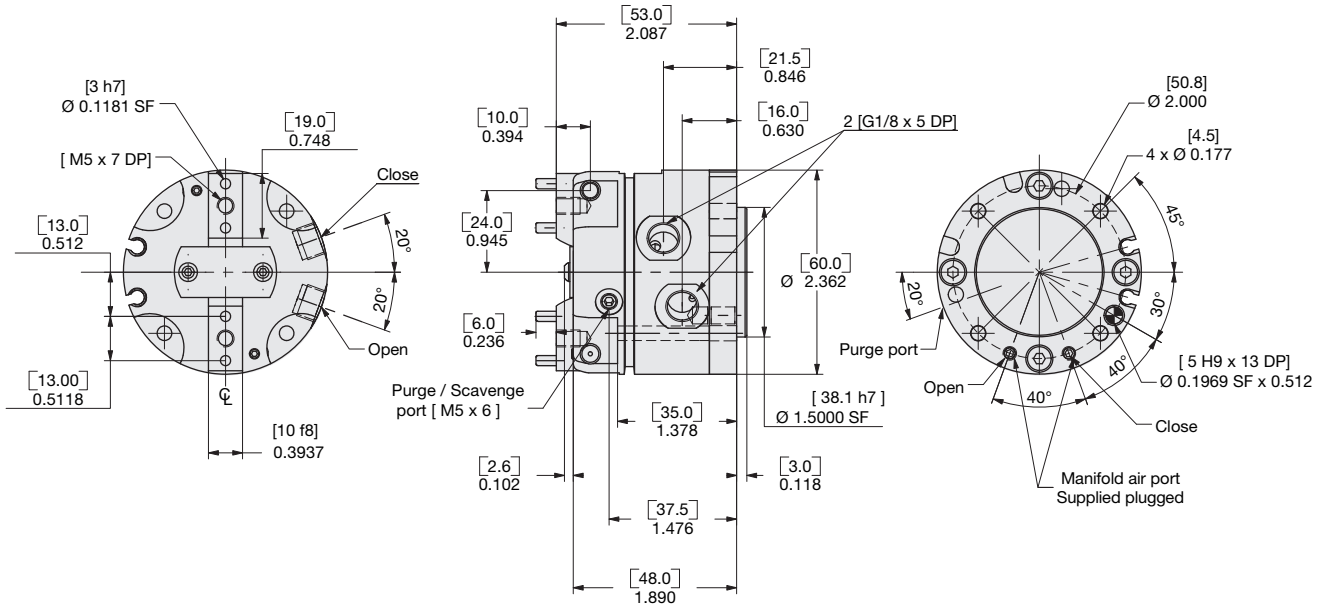
Style:	**RUA-162M**	
Stroke:	34.4°	
Grip Force:*	1778 lbs	7911 N
Weight:	14.80 lbs	6.7 Kg

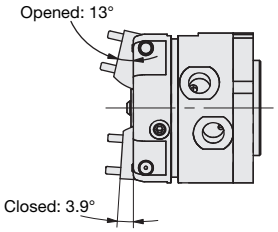
See Page **2.14**

*Grip force @ 100PSI, L=1" [25.4], with spring, jaws at 0°

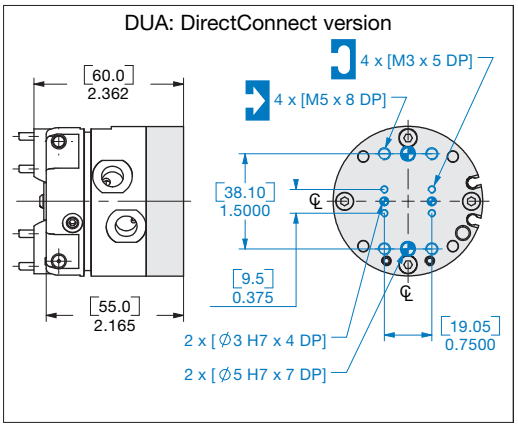
DIRECT CONNECT™

ANGULAR GRIPPER RUA/DUA-62M
SPRING ASSISTED SERIES

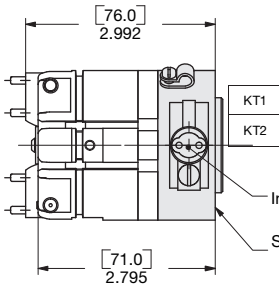




DUA: DirectConnect version



-KT: Inductive sensor



	Sensing range (From close position)	
	Yellow LED	Green LED
KT1	0° to 3.4°	13.4° to 16.8°
KT2	0° to 6.8°	10° to 16.8°

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

How to Order: (Order Separately)

BASIC MODEL — SPRING ASSIST (See Below)

[ ] - 62M - [ ] - [ ] - [ ]

POWER — INTEGRATED SENSOR

P-Pneumatic
H-Hydraulic

BASIC MODEL **RUA** Without DirectConnect mounting pattern
DUA With DirectConnect mounting pattern

POWER **P** Pneumatic
H Hydraulic (20 bar max.)

SPRING **RE** Closed
RI Open
__ Leave Blank. No Spring Option (standard)

INDUCTIVE CASE* **KT1** Sensing Range KT1
KT2 Sensing Range KT2
__ Leave Blank. No Inductive Option

* Inductive Case not available with DUA model

SAMPLE ORDER: RUA-62M-P-RI-KT1
Ex: RUA-62M Gripper, Pneumatic, Spring Open, Sensing Range KT1

SENSOR ACCESSORIES

	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor w/Qk Disconnect* ** ††	OHSP-017	1 or 2
NPN Magneto Resistive Sensor w/Qk Disconnect* ** ††	OHSN-017	1 or 2
PNP Magneto Resistive Sensor (90° Barrel) w/Qk Disc* ** ††	OHSP-011	1 or 2
NPN Magneto Resistive Sensor (90° Barrel) w/Qk Disc* ** ††	OHSN-011	1 or 2
Replacement PNP Double Inductive Sensor* ***	KT15	1
Quick Disconnect 2 Meter Cable*	CABL-010	1 or 2
Quick Disconnect 5 Meter Cable*	CABL-013	1 or 2
Quick Disconnect 2 Meter Cable (for KT15 Inductive Sensor)*	CABL-014	1 or 2

SEALED BOOT KITS

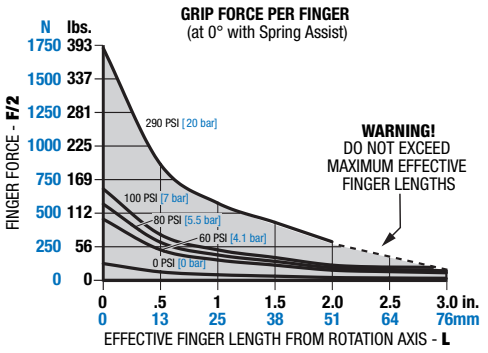
PVC Sealed Jaw Boot Kit (includes 2 interfaces, 1 collar, 1 boot)	SLKT-367	1
Kevlar Sealed Jaw Boot Kit (includes 2 interfaces, 1 collar, 1 boot)	SLKT-368	1
FireProof Kevlar Sealed Jaw Boot Kit (includes 2 interfaces, 1 collar, 1 boot)	SLKT-369	1

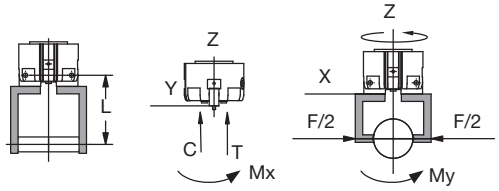
SEAL REPAIR KIT

	PNEUMATIC	HYDRAULIC	
Viton® Seal Repair Kit	SLKT-156V	SLKT-330V	1

*Sensor and cable sold separately †Requires Mounting Kit **Piston ma gnet standard
††Not compatible with Hydraulic (**-H**) option and requires -RE or -ORI option
***Requires KT1 or KT2 Inductive Case Option

Specifications	RUA/DUA-62M	
Total Rated Grip Force **L**=1 in [25.4mm] @ 0°		
100 psi, 7 bar, w/spring	86 lbs.	384 N
100 psi, 7 bar, w/o spring	70 lbs.	313 N
Stroke	16.8° of stroke for each finger	
Weight	0.86 lbs.	0.39 kg
Pressure Range (without springs)	30-100 psi	2-7 bar
Pressure Range (with springs)	45-100 psi	3-7 bar
Cylinder Bore Ø	1.57 in.	40 mm
Displacement	0.73 in^3.	12 cm^3
Temperature Range		
Viton® Seals Standard	-20°~300° F	-30~150° C
Actuation (open/close)	0.18 sec./0.18 sec.	
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.0008 mm.	±0.02 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

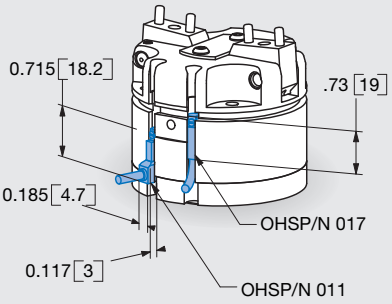




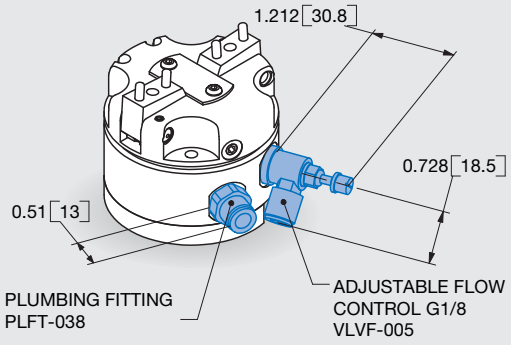
Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	53 lbs. [236 N]	11 lbs. [47.2 N]
Maximum Compressive **C**	53 lbs. [236 N]	11 lbs. [47.2 N]
Maximum Moment $\mathbf{M_X}$	111 in.-lbs. [12.5 Nm]	27 in.-lbs. [3.1 Nm]
Maximum Moment $\mathbf{M_Y}$	305 in.-lbs. [34.5 Nm]	31 in.-lbs. [3.5 Nm]
Maximum Moment $\mathbf{M_Z}$	111 in.-lbs. [12.5 Nm]	27 in.-lbs. [3.1 Nm]

†Capacities are per set of jaws and are not simultaneous

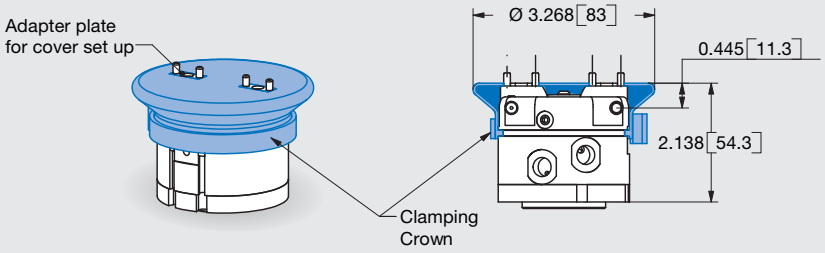
Accessory Mounting Technical Data



MR Sensors
- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M or 5M Quick Disconnect mating cable (order separately)

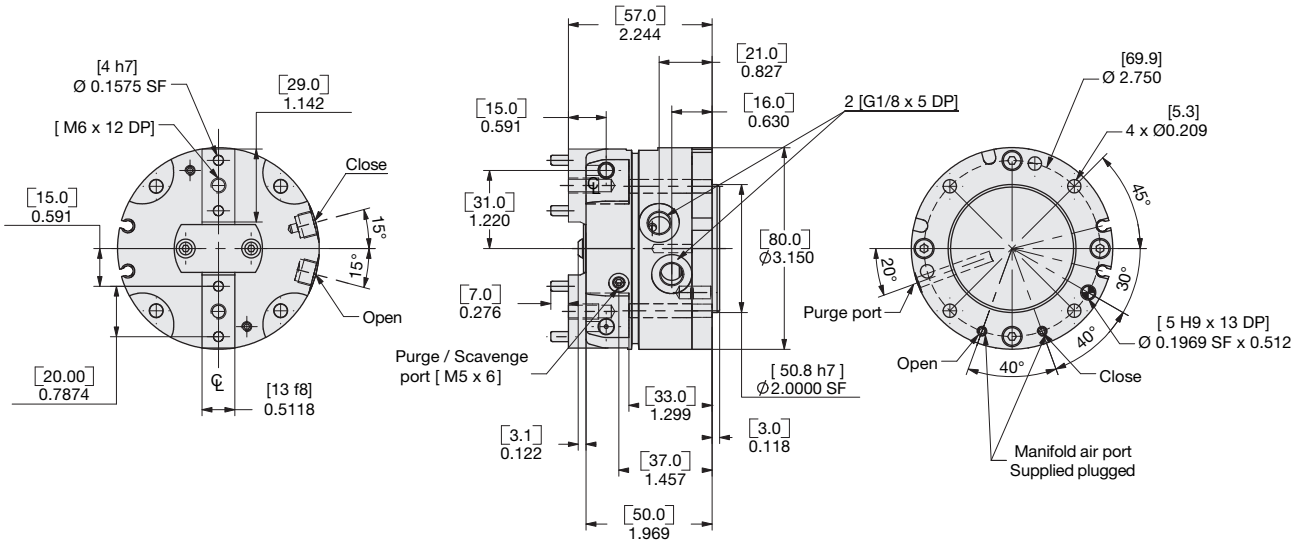


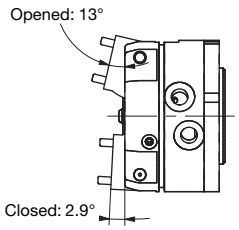
Plumbing Fittings
- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
- For side air port location
- Top airport are plugged as standard



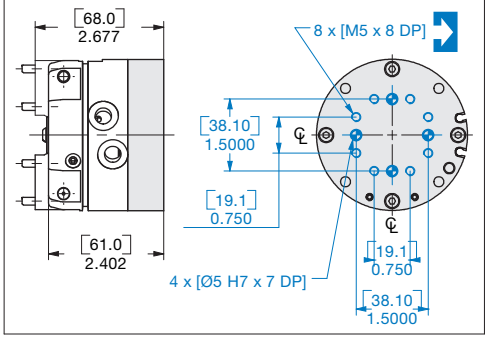
Boot
- Protects the gripper mechanism
- Provides better performance and longer life time in harsh environment
- Three materials available depending on the application:
  - PVC for grinding applications (up to 176°F / 80°C)
  - Kevlar for machine applications (up to 480°F / 250°C)
  - Fireproof Kevlar for welding applications (up to 525°F / 275°C)
- A provided spacer has to be added to the jaws

ANGULAR GRIPPER RUA/DUA-82M
SPRING ASSISTED SERIES

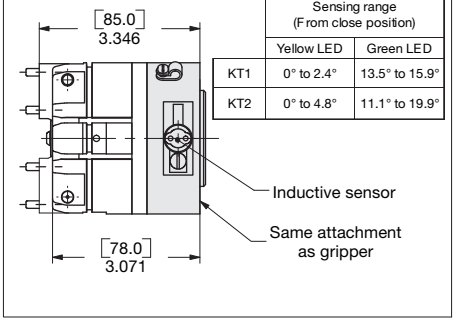




DUA: DirectConnect version



-KT: Inductive sensor



	Sensing range (From close position)	
	Yellow LED	Green LED
KT1	0° to 2.4°	13.5° to 15.9°
KT2	0° to 4.8°	11.1° to 19.9°

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Separately)

BASIC MODEL — SPRING ASSIST (See Below)

[ ] - 82M - [ ] - [ ] - [ ]

POWER — INTEGRATED SENSOR

P-Pneumatic
H-Hydraulic

BASIC MODEL **RUA** Without DirectConnect mounting pattern
DUA With DirectConnect mounting pattern

POWER **P** Pneumatic
H Hydraulic (20 bar max.)

SPRING **RE** Closed
RI Open
__ Leave Blank. No Spring Option (standard)

INDUCTIVE CASE* **KT1** Sensing Range KT1
KT2 Sensing Range KT2
__ Leave Blank. No Inductive Option

* Inductive Case not available with DUA model

SAMPLE ORDER: RUA-82M-H-RE-KT2
Ex: RUA-82M Gripper, Hydraulic, Spring Closed, Sensing Range KT2

SENSOR ACCESSORIES

	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor w/Qk Disconnect* ** ††	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor w/Qk Disconnect* ** ††	**OHSN-017**	**1 or 2**
PNP Magneto Resistive Sensor (90° Barrel) w/Qk Disc* ** ††	**OHSP-011**	**1 or 2**
NPN Magneto Resistive Sensor (90° Barrel) w/Qk Disc* ** ††	**OHSN-011**	**1 or 2**
Replacement PNP Double Inductive Sensor* ***	**KT15**	**1**
Quick Disconnect 2 Meter Cable*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable*	**CABL-013**	**1 or 2**
Quick Disconnect 2 Meter Cable (for KT15 Inductive Sensor)*	**CABL-014**	**1 or 2**

SEALED BOOT KITS

PVC Sealed Jaw Boot Kit (includes 2 interfaces, 1 collar, 1 boot)	**SLKT-370**	**1**
Kevlar Sealed Jaw Boot Kit (includes 2 interfaces, 1 collar, 1 boot)	**SLKT-371**	**1**
FireProof Kevlar Sealed Jaw Boot Kit (includes 2 interfaces, 1 collar, 1 boot)	**SLKT-372**	**1**

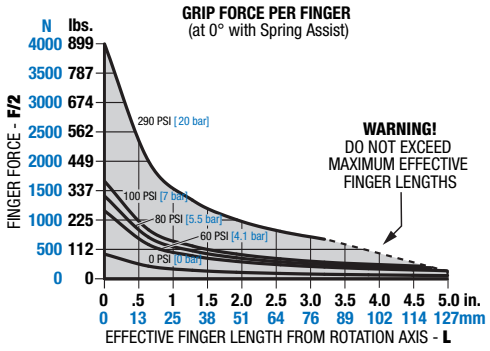
SEAL REPAIR KIT

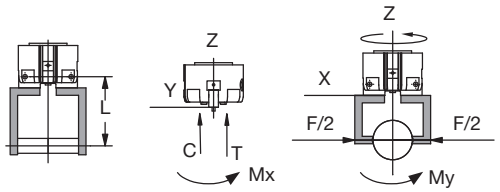
	PNEUMATIC	HYDRAULIC	
Viton® Seal Repair Kit	**SLKT-157V**	**SLKT-331V**	**1**

*Sensor and cable sold separately †Requires Mounting Kit **Piston ma gnet standard
††Not compatible with Hydraulic (**-H**) option and requires -RE or -0RI option
***Requires KT1 or KT2 Inductive Case Option

DIRECTCONNECT™

Specifications	RUA/DUA-82M	
Total Rated Grip Force **L**=1 in [25.4mm] @ 0°		
100 psi, 7 bar, w/spring	276 lbs	1228 N
100 psi, 7 bar, w/o spring	207 lbs.	922 N
Stroke	15.9° of stroke for each finger	
Weight	1.55 lbs.	0.70 kg
Pressure Range (without springs)	30-100 psi	2-7 bar
Pressure Range (with springs)	45-100 psi	3-7 bar
Cylinder Bore Ø	2.36 in.	60 mm
Displacement	2.14 in³.	35 cm³
Temperature Range		
Viton® Seals Standard	-20°~300° F	-30~150° C
Actuation (open/close)	0.10 sec./0.10 sec.	
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.0008 mm.	±0.02 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

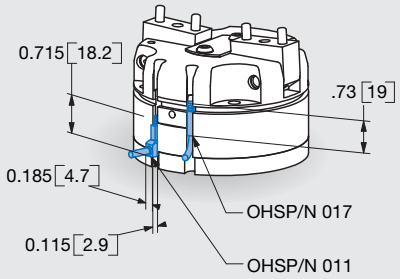




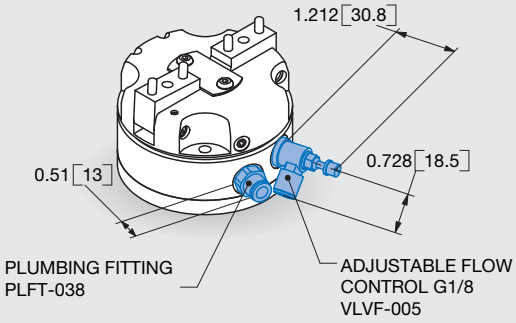
Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	65 lbs. [290 N]	13 lbs. [58 N]
Maximum Compressive **C**	65 lbs. [290 N]	13 lbs. [58 N]
Maximum Moment M_x	168 in.-lbs. [19 Nm]	42 in.-lbs. [4.8 Nm]
Maximum Moment M_y	1071 in.-lbs. [121 Nm]	106 in.-lbs. [12 Nm]
Maximum Moment M_z	168 in.-lbs. [19 Nm]	42 in.-lbs. [4.8 Nm]

†Capacities are per set of jaws and are not simultaneous

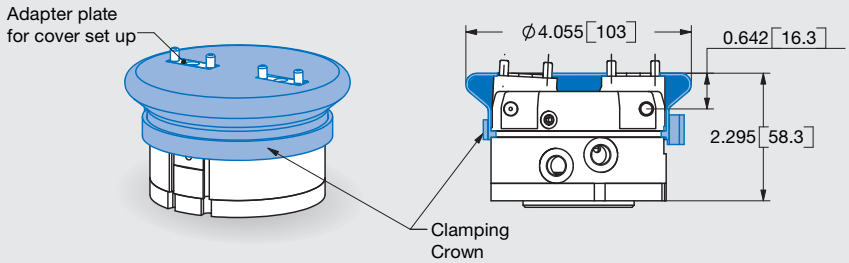
Accessory Mounting Technical Data



MR Sensors
- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M or 5M Quick Disconnect mating cable (order separately)

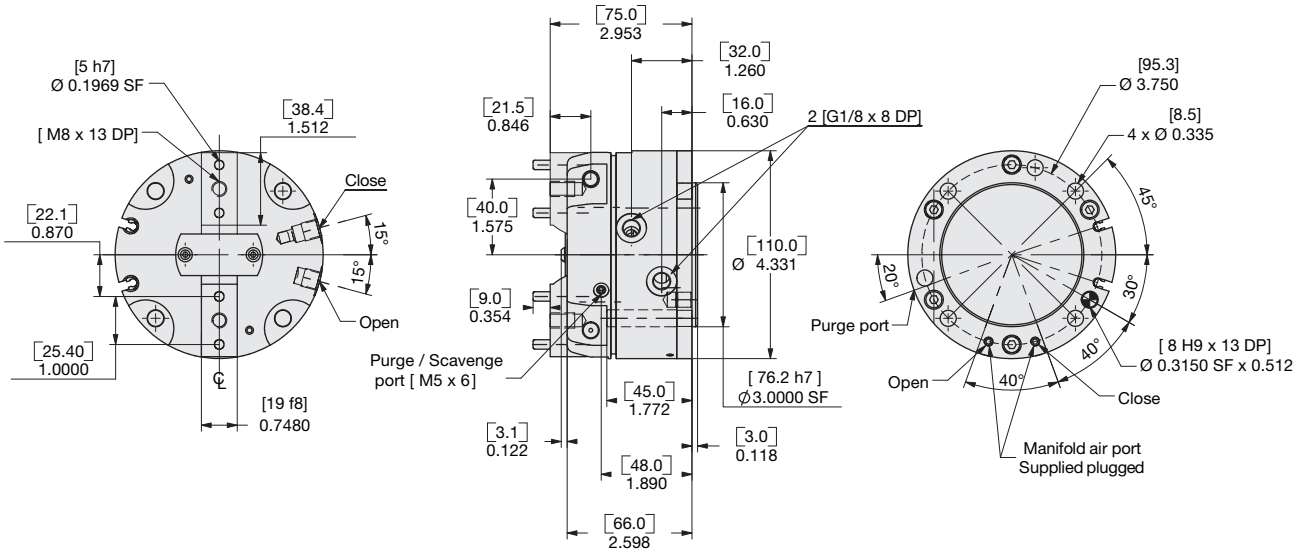


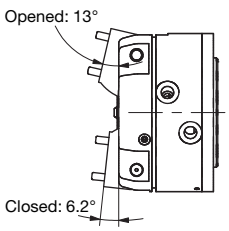
Plumbing Fittings
- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
- For side air port location
- Top airport are plugged as standard



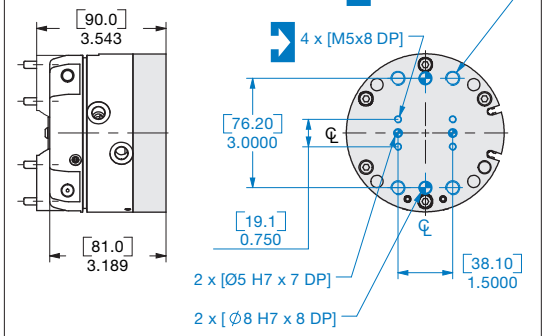
Boot
- Protects the gripper mechanism
- Provides better performance and longer life time in harsh environment
- Three materials available depending on the application:
  - PVC for grinding applications (up to 176°F / 80°C)
  - Kevlar for machine applications (up to 480°F / 250°C)
  - Fireproof Kevlar for welding applications (up to 525°F / 275°C)
- A provided spacer has to be added to the jaws

ANGULAR GRIPPER RUA/DUA-112M
SPRING ASSISTED SERIES

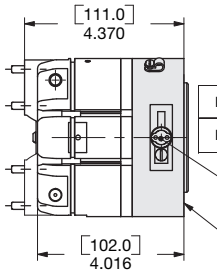




DUA: DirectConnect version



-KT: Inductive sensor



	Sensing range (From close position)	
	Yellow LED	Green LED
KT1	0° to 1.9°	17.2° to 19.1°
KT2	0° to 5.7°	13.4° to 19.1°

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Separately)

BASIC MODEL — SPRING ASSIST (See Below)

[ ]-112M-[ ]-[ ]-[ ]

POWER — INTEGRATED SENSOR

P-Pneumatic
H-Hydraulic

BASIC MODEL **RUA** Without DirectConnect mounting pattern
DUA With DirectConnect mounting pattern

POWER **P** Pneumatic
H Hydraulic (20 bar max.)

SPRING **RE** Closed
RI Open
__ Leave Blank. No Spring Option (standard)

INDUCTIVE CASE* **KT1** Sensing Range KT1
KT2 Sensing Range KT2
__ Leave Blank. No Inductive Option

* Inductive Case not available with DUA model

SAMPLE ORDER: RUA-112M-P-RI-KT2
Ex: RUA-112M Gripper, Pneumatic, Spring Open, Sensing Range KT2

SENSOR ACCESSORIES

	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor w/Qk Disconnect* ** ††	OHSP-017	1 or 2
NPN Magneto Resistive Sensor w/Qk Disconnect* ** ††	OHSN-017	1 or 2
PNP Magneto Resistive Sensor (90° Barrel) w/Qk Disc* ** ††	OHSP-011	1 or 2
NPN Magneto Resistive Sensor (90° Barrel) w/Qk Disc* ** ††	OHSN-011	1 or 2
Replacement PNP Double Inductive Sensor* ***	KT15	1
Quick Disconnect 2 Meter Cable*	CABL-010	1 or 2
Quick Disconnect 5 Meter Cable*	CABL-013	1 or 2
Quick Disconnect 2 Meter Cable (for KT15 Inductive Sensor)*	CABL-014	1 or 2

SEALED BOOT KITS

PVC Sealed Jaw Boot Kit (includes 2 interfaces, 1 collar, 1 boot)	SLKT-373	1
Kevlar Sealed Jaw Boot Kit (includes 2 interfaces, 1 collar, 1 boot)	SLKT-374	1
FireProof Kevlar Sealed Jaw Boot Kit (includes 2 interfaces, 1 collar, 1 boot)	SLKT-375	1

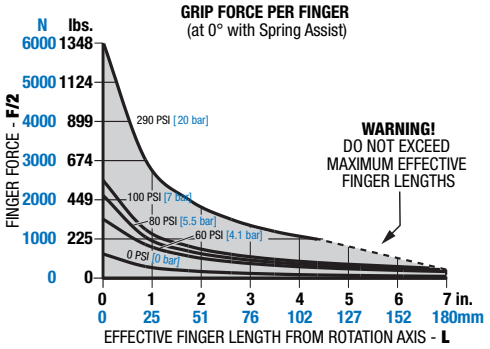
SEAL REPAIR KIT

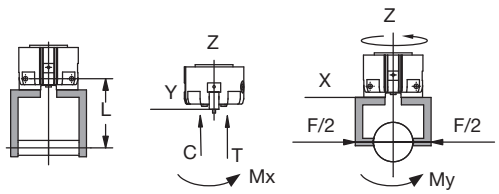
	PNEUMATIC	HYDRAULIC	
Viton® Seal Repair Kit	SLKT-158V	SLKT-332V	1

*Sensor and cable sold separately †Requires Mounting Kit **Piston ma gnet standard
††Not compatible with Hydraulic (**-H**) option and requires -RE or -ORI option
***Requires KT1 or KT2 Inductive Case Option

DIRECTCONNECT™

Specifications	RUA/DUA-112M	
Total Rated Grip Force **L**=1 in [25.4mm] @ 0°		
100 psi, 7 bar, w/spring	483 lbs.	2150 N
100 psi, 7 bar, w/o spring	360 lbs.	1600 N
Stroke	19.1° of stroke for each finger	
Weight	3.75 lbs.	1.70 kg
Pressure Range (without springs)	30-100 psi	2-7 bar
Pressure Range (with springs)	45-100 psi	3-7 bar
Cylinder Bore Ø	2.99 in.	76 mm
Displacement	5.19 in^3.	85 cm^3
Temperature Range		
Viton® Seals Standard	-20°~300° F	-30~150° C
Actuation (open/close)	0.35 sec./0.35 sec.	
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.0008 mm.	±0.03 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

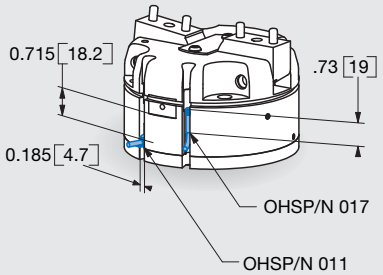




Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	107 lbs. [475 N]	21 lbs. [95 N]
Maximum Compressive **C**	107 lbs. [475 N]	21 lbs. [95 N]
Maximum Moment $\mathbf{M_X}$	319 in.-lbs. [36 Nm]	80 in.-lbs. [9 Nm]
Maximum Moment $\mathbf{M_Y}$	2159 in.-lbs. [244 Nm]	212 in.-lbs. [24 Nm]
Maximum Moment $\mathbf{M_Z}$	319 in.-lbs. [36 Nm]	80 in.-lbs. [9 Nm]

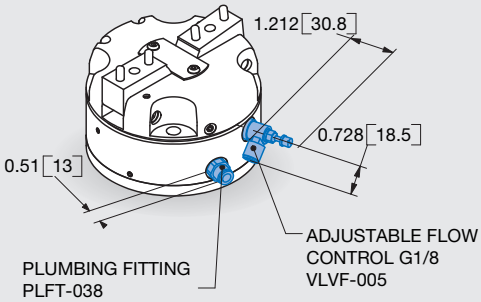
†Capacities are per set of jaws and are not simultaneous

Accessory Mounting Technical Data



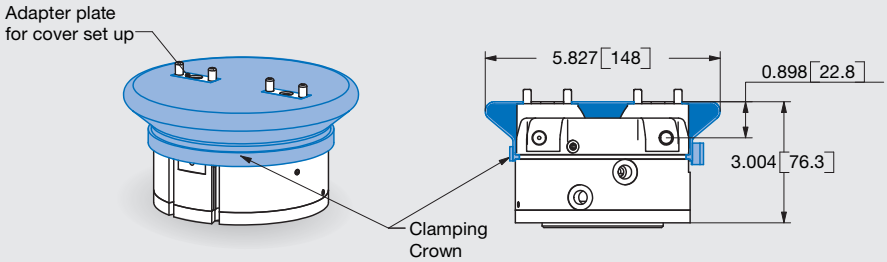
MR Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



Plumbing Fittings

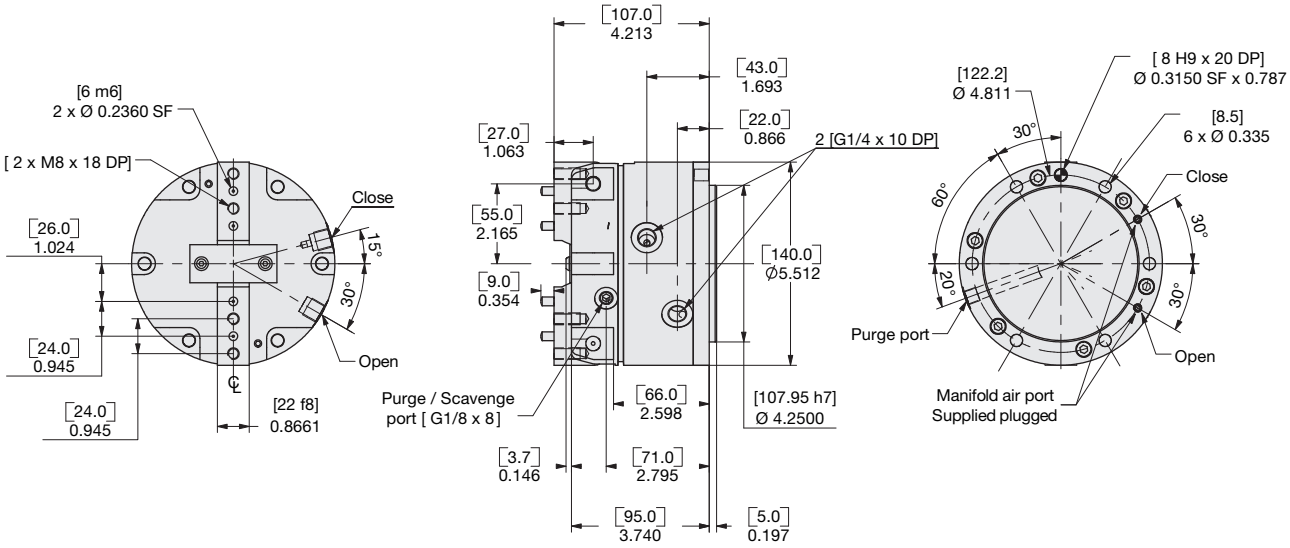
- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
- For side air port location
- Top airport are plugged as standard

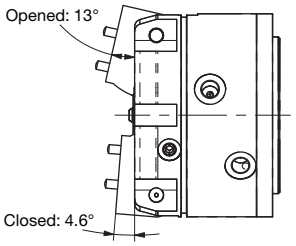


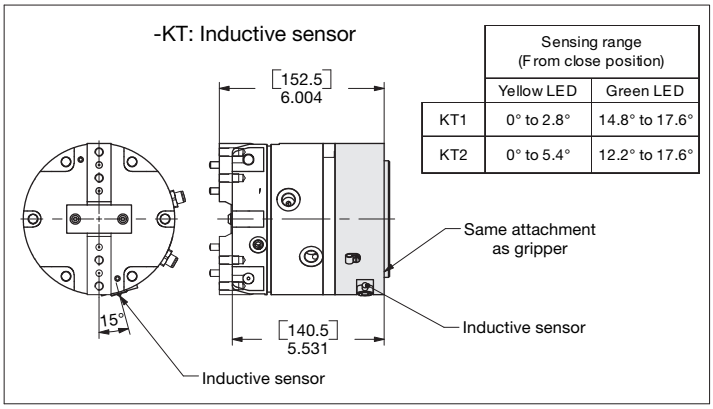
Boot

- Protects the gripper mechanism
- Provides better performance and longer life time in harsh environment
- Three materials available depending on the application:
  - PVC for grinding applications (up to 176°F / 80°C)
  - Kevlar for machine applications (up to 480°F / 250°C)
  - Fireproof Kevlar for welding applications (up to 525°F / 275°C)
- A provided spacer has to be added to the jaws

ANGULAR GRIPPER RUA-142M
SPRING ASSISTED SERIES







	Sensing range (From close position)	
	Yellow LED	Green LED
KT1	0° to 2.8°	14.8° to 17.6°
KT2	0° to 5.4°	12.2° to 17.6°

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

How to Order: (Order Separately)

BASIC MODEL | SPRING ASSIST (See Below)

RUA-142M - ___ - ___ - ___

POWER | INTEGRATED SENSOR

P-Pneumatic
H-Hydraulic

POWER **P** Pneumatic
H Hydraulic (20 bar max.)

SPRING **RE** Closed
RI Open
__ Leave Blank. No Spring Option (standard)

INDUCTIVE CASE **KT1** Sensing Range KT1
KT2 Sensing Range KT2
__ Leave Blank. No Inductive Option

SAMPLE ORDER: RUA-142M-H-RE-KT1
Ex: RUA-142M Gripper, Hydraulic, Spring Closed, Sensing Range KT1

SENSOR ACCESSORIES

	ORDER #	QTY/UNIT
Replacement PNP Double Inductive Sensor* ***	KT15	1
Quick Disconnect 2 Meter Cable (for KT15 Inductive Sensor)*	CABL-014	1 or 2

SEALED BOOT KITS

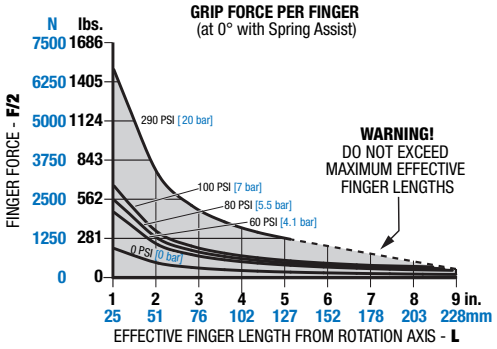
PVC Sealed Jaw Boot Kit (includes 2 interfaces, 1 collar, 1 boot)	SLKT-376	1
Kevlar Sealed Jaw Boot Kit (includes 2 interfaces, 1 collar, 1 boot)	SLKT-377	1
FireProof Kevlar Sealed Jaw Boot Kit (includes 2 interfaces, 1 collar, 1 boot)	SLKT-378	1

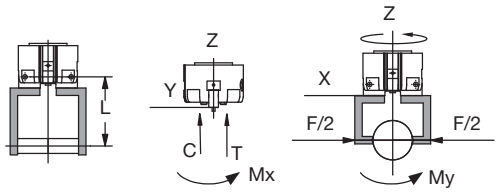
SEAL REPAIR KIT

	PNEUMATIC	HYDRAULIC	
Viton® Seal Repair Kit	SLKT-333V	SLKT-334V	1

*Sensor and cable sold separately ***Requires KT1 or KT2 Inductive Case Option

Specifications	RUA-142M	
Total Rated Grip Force **L**=1 in [25.4mm] @ 0°		
100 psi, 7 bar, w/spring	1298 lbs.	5775 N
100 psi, 7 bar, w/o spring	886 lbs.	3941 N
Stroke	17.6° of stroke for each finger	
Weight	9.05 lbs.	4.1 kg
Pressure Range (without springs)	30-100 psi	2-7 bar
Pressure Range (with springs)	60-100 psi	4-7 bar
Cylinder Bore Ø	4.13 in.	105 mm
Displacement	13.2 in^3.	215 cm^3
Temperature Range		
Viton® Seals Standard	-20°~300° F	-30~150° C
Actuation (open/close)	0.60 sec./0.60 sec.	
Accuracy	±0.003 in.	±0.8 mm
Repeatability	±0.0008 mm.	±0.03 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

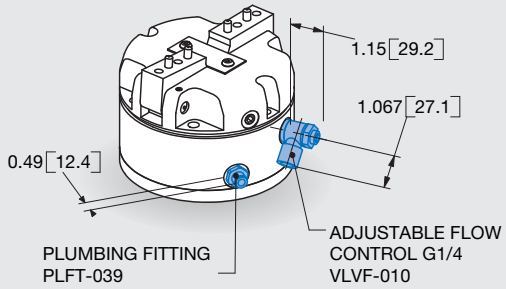




Loading Capacity†	Static	Dynamic
Maximum Tensile **T**	142 lbs. [630 N]	28 lbs. [126 N]
Maximum Compressive **C**	142 lbs. [630 N]	28 lbs. [126 N]
Maximum Moment **Mx**	460 in.-lbs. [52 Nm]	115 in.-lbs. [13 Nm]
Maximum Moment **My**	6160 in.-lbs. [696 Nm]	611 in.-lbs. [69 Nm]
Maximum Moment **Mz**	460 in.-lbs. [52 Nm]	115 in.-lbs. [13 Nm]

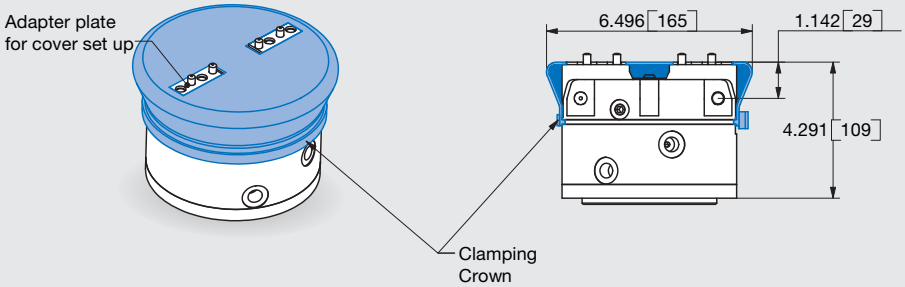
†Capacities are per set of jaws and are not simultaneous

Accessory Mounting Technical Data



Plumbing Fittings

- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
- For side air port location
- Top airport are plugged as standard

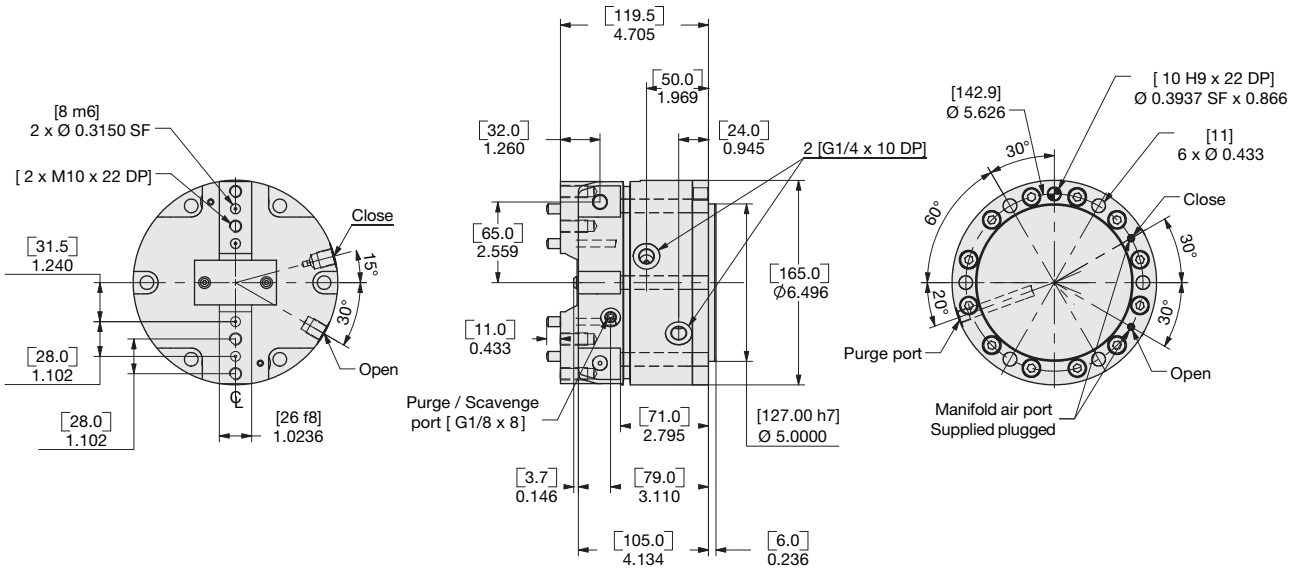


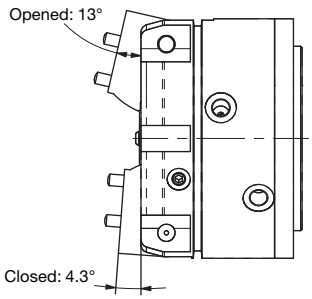
Boot

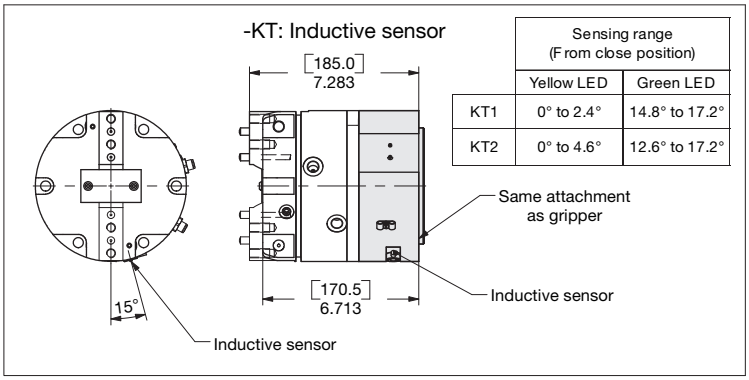
- Protects the gripper mechanism
- Provides better performance and longer life time in harsh environment
- Three materials available depending on the application:
  - PVC for grinding applications (up to 176°F / 80°C)
  - Kevlar for machine applications (up to 480°F / 250°C)
  - Fireproof Kevlar for welding applications (up to 525°F / 275°C)
- A provided spacer has to be added to the jaws

ANGULAR GRIPPER RUA-162M
SPRING ASSISTED SERIES

Robohand







	Sensing range (From close position)	
	Yellow LED	Green LED
KT1	0° to 2.4°	14.8° to 17.2°
KT2	0° to 4.6°	12.6° to 17.2°

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

How to Order: (Order Separately)

BASIC MODEL: **RUA-162M** - [ ] - [ ] - [ ]
SPRING ASSIST (See Below) | POWER | INTEGRATED SENSOR

P-Pneumatic
H-Hydraulic

POWER **P** Pneumatic
H Hydraulic (20 bar max.)

SPRING **RE** Closed
RI Open
__ Leave Blank. No Spring Option (standard)

INDUCTIVE CASE **KT1** Sensing Range KT1
KT2 Sensing Range KT2
__ Leave Blank. No Inductive Option

SAMPLE ORDER: RUA-162M-H-RI-KT2
Ex: RUA-162M Gripper, Hydraulic, Spring Open, Sensing Range KT2

SENSOR ACCESSORIES

	ORDER #	QTY/UNIT
Replacement PNP Double Inductive Sensor* ***	KT15	1
Quick Disconnect 2 Meter Cable (for KT15 Inductive Sensor)*	CABL-014	1 or 2

SEALED BOOT KITS

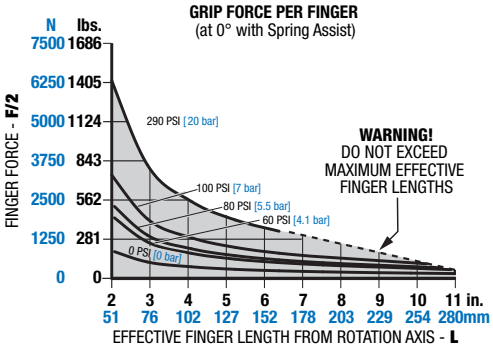
PVC Sealed Jaw Boot Kit (includes 2 interfaces, 1 collar, 1 boot)	SLKT-379	1
Kevlar Sealed Jaw Boot Kit (includes 2 interfaces, 1 collar, 1 boot)	SLKT-380	1
FireProof Kevlar Sealed Jaw Boot Kit (includes 2 interfaces, 1 collar, 1 boot)	SLKT-381	1

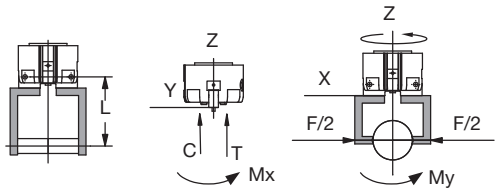
SEAL REPAIR KIT

	PNEUMATIC	HYDRAULIC	
Viton® Seal Repair Kit	SLKT-335V	SLKT-336V	1

*Sensor and cable sold separately ***Requires KT1 or KT2 Inductive Case Option

Specifications	RUA-162M	
Total Rated Grip Force **L**=2 in [50.8mm] @ 0°		
100 psi, 7 bar, w/spring	1234 lbs.	5490 N
100 psi, 7 bar, w/o spring	853 lbs.	3790 N
Stroke	17.2° of stroke for each finger	
Weight	14.8 lbs.	6.7 kg
Pressure Range (without springs)	30-100 psi	2-7 bar
Pressure Range (with springs)	60-100 psi	4-7 bar
Cylinder Bore Ø	4.72 in.	120 mm
Displacement	19.7 in^3.	322 cm^3
Temperature Range		
Viton® Seals Standard	-20°~300° F	-30~150° C
Actuation (open/close)	0.80 sec./0.80 sec.	
Accuracy	±0.003 in.	±0.8 mm
Repeatability	±0.0008 mm.	±0.03 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

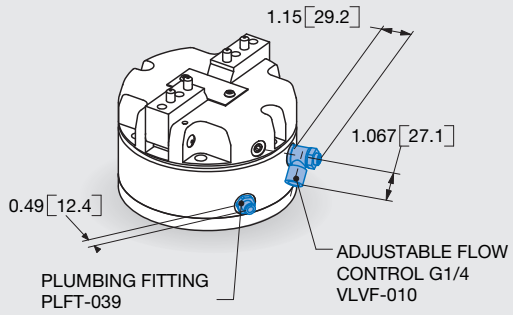




Loading Capacity†1	Static	Dynamic
Maximum Tensile **T**	189 lbs. [840 N]	38 lbs. [168 N]
Maximum Compressive **C**	189 lbs. [840 N]	38 lbs. [168 N]
Maximum Moment **Mx**	664 in.-lbs. [75 Nm]	166 in.-lbs. [18.8 Nm]
Maximum Moment **My**	9293 in.-lbs. [1050 Nm]	885 in.-lbs. [100 Nm]
Maximum Moment **Mz**	664 in.-lbs. [75 Nm]	166 in.-lbs. [18.8 Nm]

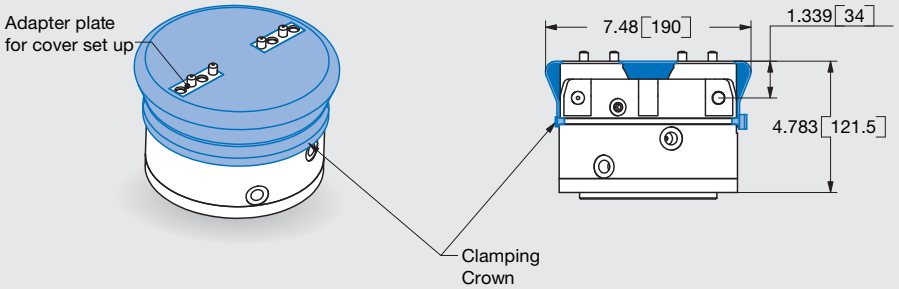
†Capacities are per set of jaws and are not simultaneous

Accessory Mounting Technical Data



Plumbing Fittings

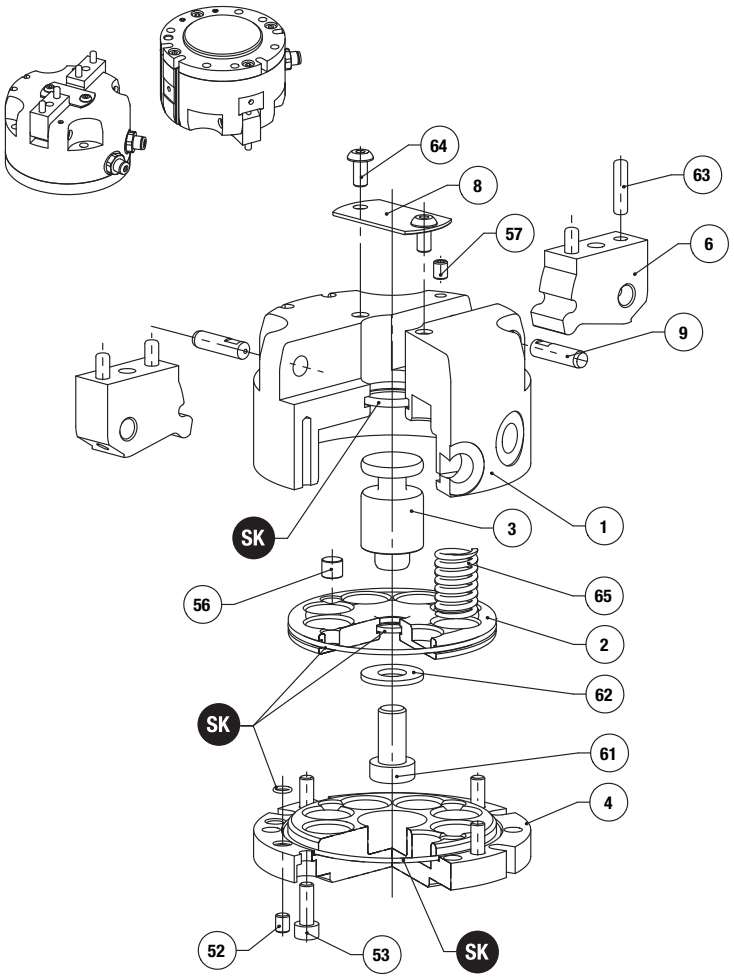
- Adjustable flow controls:
  - Have thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm OD tubing
- Plumbing fittings:
- For side air port location
- Top airport are plugged as standard

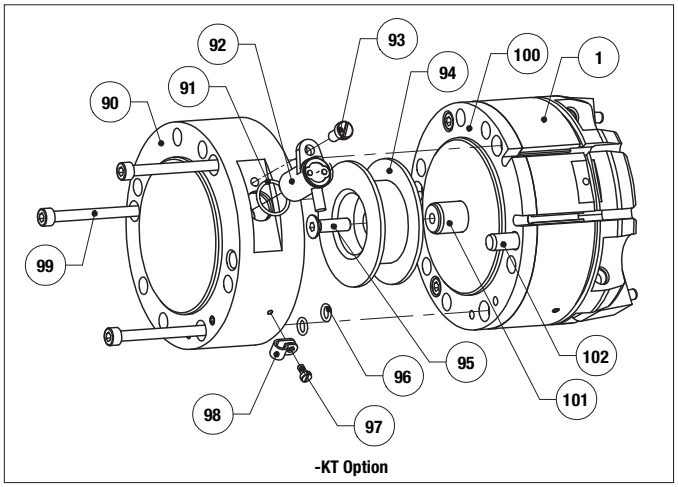


Boot

- Protects the gripper mechanism
- Provides better performance and longer life time in harsh environment
- Three materials available depending on the application:
  - PVC for grinding applications (up to 176°F / 80°C)
  - Kevlar for machine applications (up to 480°F / 250°C)
  - Fireproof Kevlar for welding applications (up to 525°F / 275°C)
- A provided spacer has to be added to the jaws

RUA/DUA Series Exploded View





-KT Option

Item	Qty	Name
01	1	Body
02	1	Piston
03	1	Cam Driver
04	1	Cap
06	2	Jaw
08	1	Shielded case
09	2	Pivot Pin
52	2	SS Screw, Cap
53	4	SHC Screw, Cap
56	1	Magnet
57	2	SS Screw, Body
61	1	SHC Screw, Piston
62	1	Nut, Piston
63	4	Pin, Jaw
64	2	Screw, Shielded case
65	1	Springs
90	1	KT Body
91	1	KT Body, O-Ring
92	1	KT Sensor
93	1	KT Body, Screw
94	1	Target
95	1	Target, Screw
96	2	KT Body, O-Ring
97	1	KT Body, Screw
98	1	Wire Holder
99	3	KT Body, Screw
100	1	Cap for KT Shaft
101	1	Shaft
102	1	KT Body, Pin

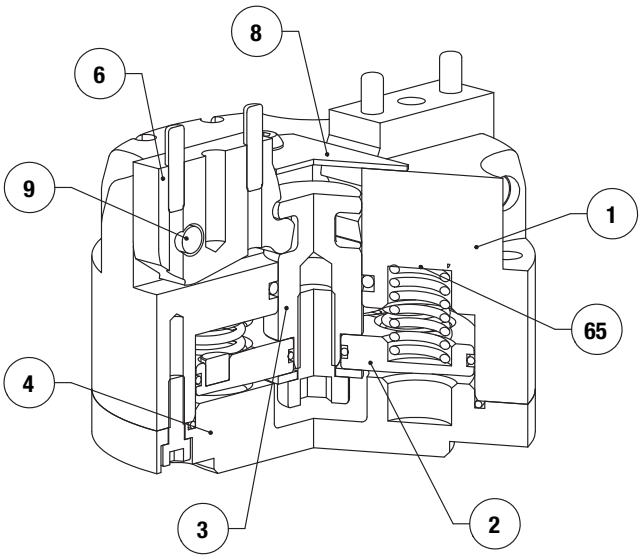
NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedure

1) Lubricate and install the seals onto the cap (x3), the piston (x2) and the body (x1).
2) If top airports are used, remove the plug screws from the cap (#4) and insert into side airports of the body (#1).
3) Assemble the piston (#2) and the cam driver (#3) with the washer and the screw.
   - RE option : Place the counterbore holes of the piston on the cam driver side.
   - RI option : Place the counterbore holes of the piston on the screw side.
4) Insert the piston into the body. Orientate the piston so that the magnets are placed in front of the body slots.
   - RE option : insert the springs (#65) between the body and the piston in the counterbore holes.
5) Place and screw the cap onto the body. The dowel holes of the cap and of the body have to be aligned.
   - RI option : insert the springs (#65) between the cap and the piston in the counterbore holes.
6) Lubricate the slots and the jaws (#6) and the groove of the cam driver.
7) Place the jaws into the body slot and insert the pivot pin aligning with the jaw hole. The flat of the pivot pin has put in front of the rear side of the body. Screw SS screw into the body to prevent the pivot pin from moving.
8) Attach the shielded case.

SK Seal Repair Kit Order #'s See Product Data Sheets

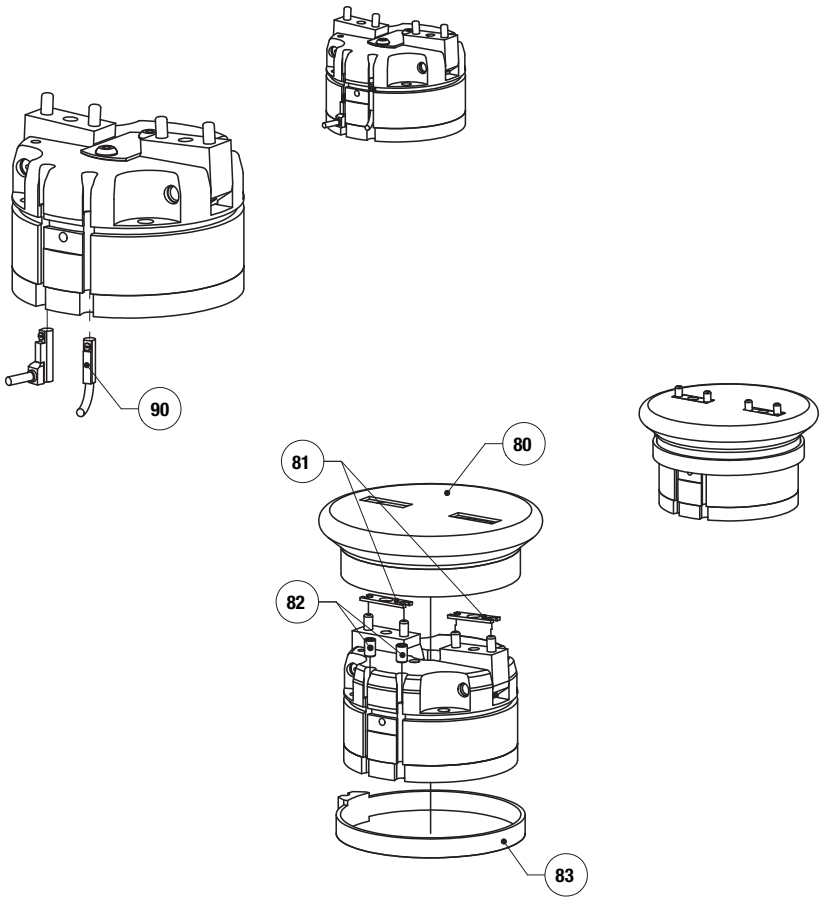
SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection



Item	Qty	Name
01	1	Body
02	1	Piston
03	1	Cam Driver
04	1	Cap
06	2	Jaw
08	1	Shielded case
09	2	Pivot Pin
52	2	SS Screw, Cap
53	4	SHC Screw, Cap
56	1	Magnet
57	2	SS Screw, Body
61	1	SHC Screw, Piston
62	1	Nut, Piston
63	4	Pin, Jaw
64	2	Screw, Shielded case
65	1	Springs

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Accessory Installation & Adjustment Instructions



Installation - MR Sensors

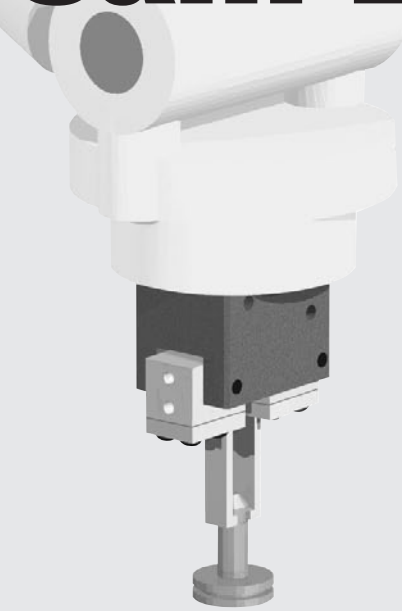
1) Insert sensors (#90) for either end of the profile slots
2) Set the sensors with the integrated screw

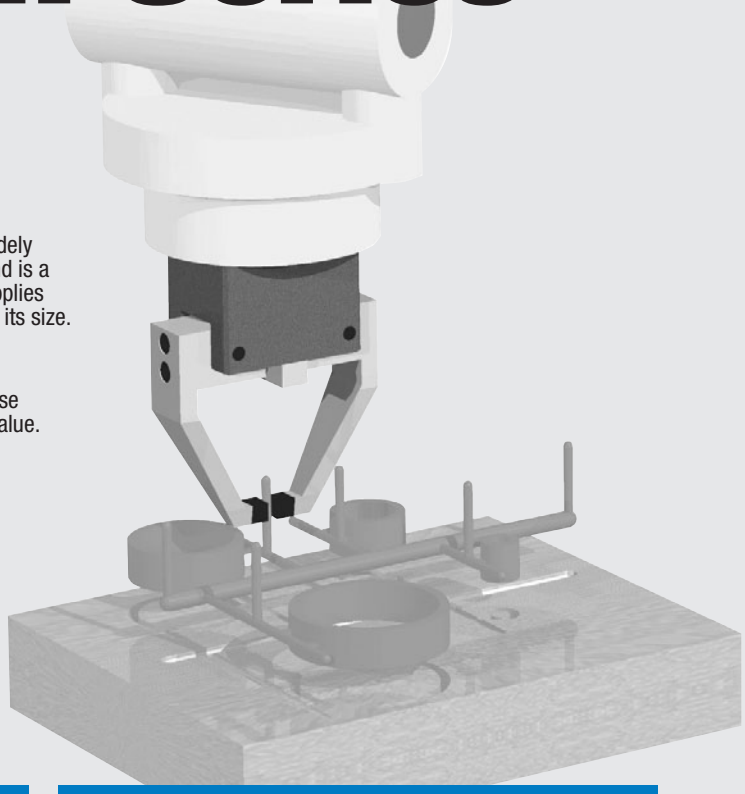
Installation - Boot

1) Mount the gripper onto the customer mounting plate
2) Insert the spacer (#81) into the pins of the jaws
3) Insert sensor slot plugs (#82) into sensor mounting groove. Install the boot (#80) on the gripper. The jaw opening of the boot has to fit with the spacer. Insert lip of boot seal into the groove of the gripper
4) Use the clamping ring (#83) to fasten the boot on the gripper
5) Attach fingers to the jaws (ensure that boot is sealed between the jaws and the finger)

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

Angular Grippers - Cam Driven Series

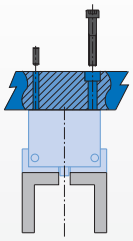




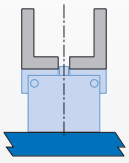
- **General Purpose:** This style gripper is widely used in the industry and is a rugged design that supplies very high grip force for its size.
- **Cost Effective:** The simplified drive mechanism makes these grippers an excellent value.

Mounting Information:

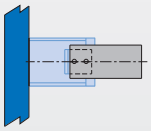
Grippers can be mounted & operated in any orientation

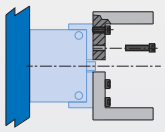


Body mounts with screws and locates with slip fit dowel pins for accuracy



Warning! Protect jaw mechanism from falling debris when mounted upside down





Fingers attach to jaws with screws and locate by keying

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

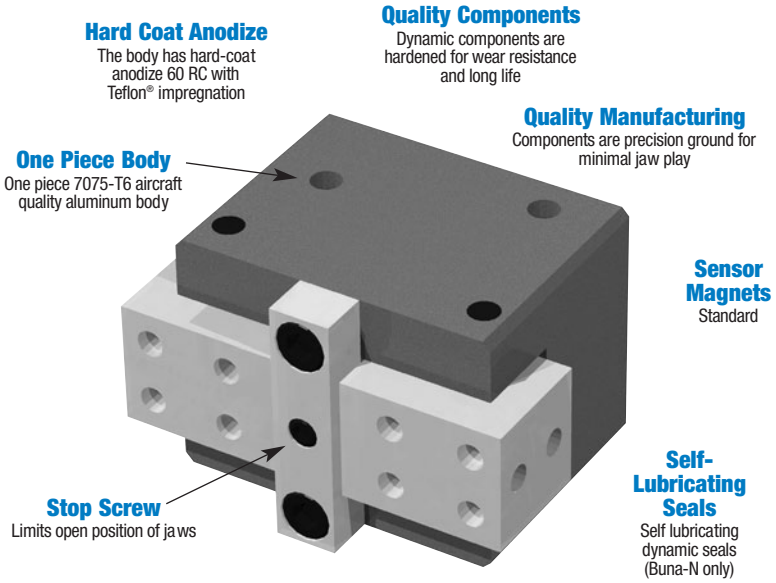
Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~300° F**	**-30°~150° C**

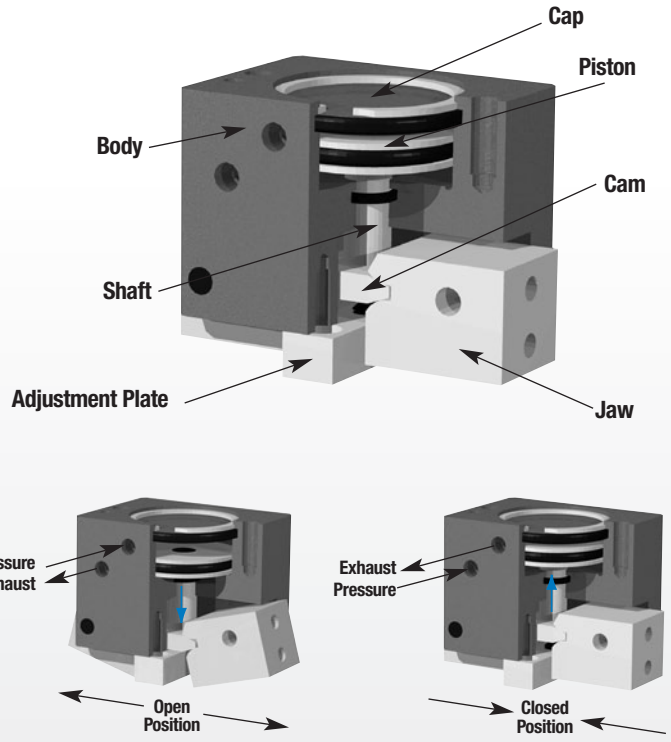
Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features



Operating Principle



- A double acting piston is connected by a shaft to a cam.
- The cam rolls in a slot located in each of the jaws converting vertical motion of the wedge into angular synchronous motion of the jaws.
- This gripper is suitable for internal or external gripping.

Designed and manufactured in the USA

Style-RA Angular Gripper
Size -5M

	Style: RA-5	RA-5M
Stroke:	15° each finger	
Grip Force:	20 lbs.	89 N
Weight:	.25 lbs.	.11 Kg

See Page 2.20

Style-RA Angular Gripper
Size -6M

	Style: RA-6	RA-6M
Stroke:	15° each finger	
Grip Force:	44 lbs.	196 N
Weight:	.68 lbs.	.31 Kg

See Page 2.21

Style-RA Angular Gripper
Size -7M

	Style: RA-7	RA-7M
Stroke:	15° each finger	
Grip Force:	120 lbs.	534 N
Weight:	1.8 lbs.	0.8 Kg

See Page 2.22

Style-RA Angular Gripper
Size -8M

	Style: RA-8	RA-8M
Stroke:	15° each finger	
Grip Force:	180 lbs.	801 N
Weight:	4.6 lbs.	2 Kg

See Page 2.23

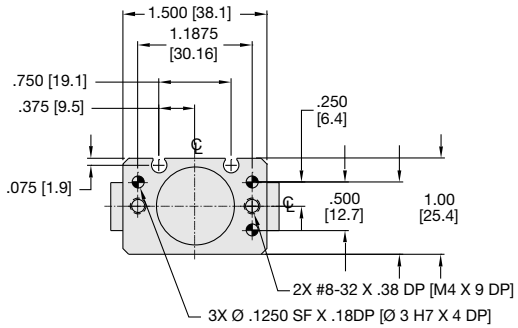
Style-RA Angular Gripper
Size -10M

	Style: RA-10	RA-10M
Stroke:	15° each finger	
Grip Force:	16 lbs.	71 N
Weight:	.06 lbs.	.03 Kg

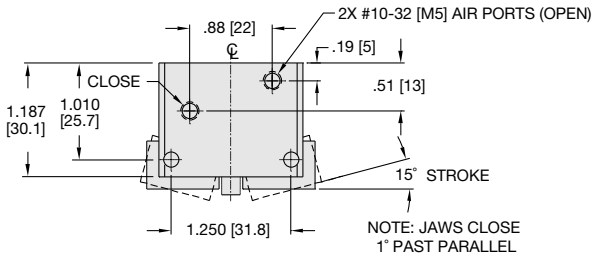
See Page 2.26

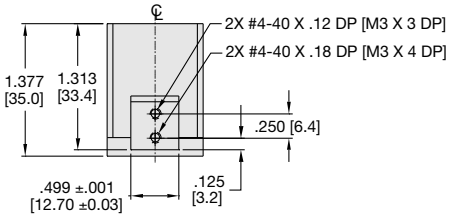
ANGULAR GRIPPER RA-5M
CAM DRIVEN SERIES

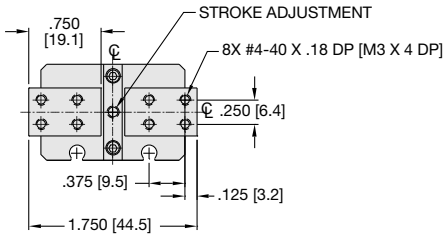
Robohand



Specifications	RA-5	RA-5M
Total Rated Grip Force **F** @ 100 psi, 7 bar	20 lbs.	89 N
Stroke	15° of stroke for each finger	
Open Stroke Adjustment	15° of stroke for each finger	
Weight	0.25 lbs.	0.11 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	.813 in.	20.6 mm
Displacement	0.130 in^3.	2.1 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.10 sec.	0.10 sec.
Accuracy	±0.005 in.	±0.13 mm
Repeatability	±0.003 in.	±0.08 mm
Valve required to actuate	4-way, 2-position	







UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

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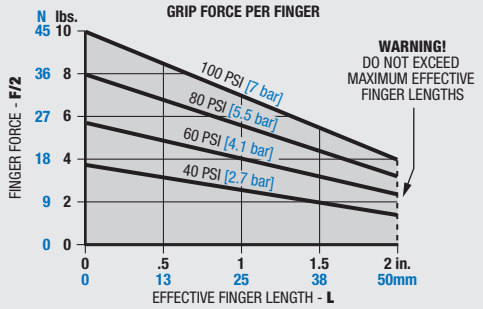
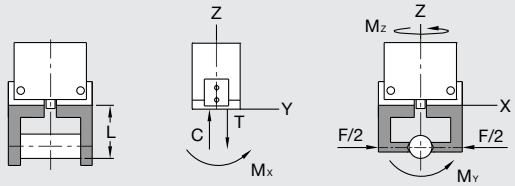




Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	10 lbs.	44 N	10 lbs.	44 N
Maximum Compressive **C**	10 lbs.	44 N	10 lbs.	44 N
Maximum Moment $\mathbf{M_X}$	10 in.- lbs.	1.1 Nm	10 in.- lbs.	1.1 Nm
Maximum Moment $\mathbf{M_Y}$	10 in.- lbs.	1.1 Nm	10 in.- lbs.	1.1 Nm
Maximum Moment $\mathbf{M_Z}$	10 in.- lbs.	1.1 Nm	10 in.- lbs.	1.1 Nm

†Capacities are per set of jaws and are not simultaneous

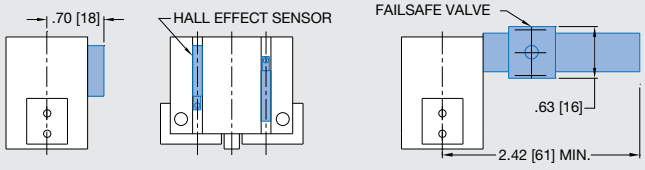
How to Order: (Order Separately)

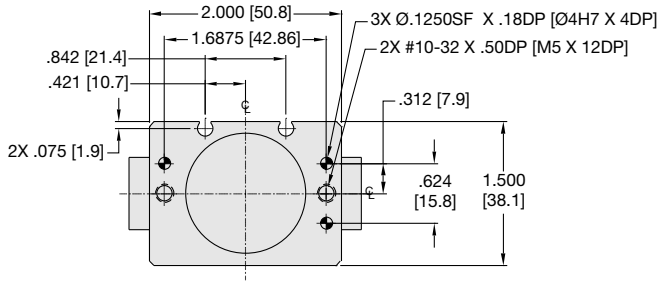
BASIC MODEL **RA-5** **M** - **V** METRIC VITON® SEALS

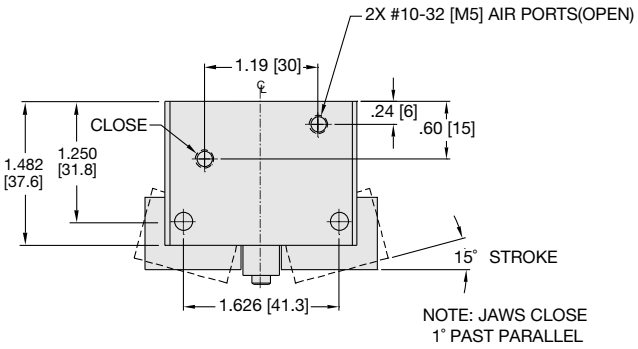
SENSOR ACCESSORIES	ORDER #	QTY/UNIT
4mm NPN Magneto Resistive Sensor*	**OHSN-017**	**1 or 2**
4mm PNP Magneto Resistive Sensor*	**OHSP-017**	**1 or 2**
4mm NPN 90° Magneto Resistive Sensor*	**OHSN-011**	**1 or 2**
4mm PNP 90° Magneto Resistive Sensor*	**OHSP-011**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**

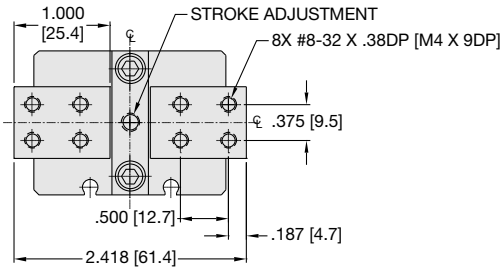
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	**OFSV-001**	**1**
Fail Safe Valve (Metric)	**OFSV-004**	**1**
Standard Seal Repair Kit	**SLKT-022**	**1**
Viton® Seal Repair Kit	**SLKT-022V**	**1**

*Sensor and cable sold separately.

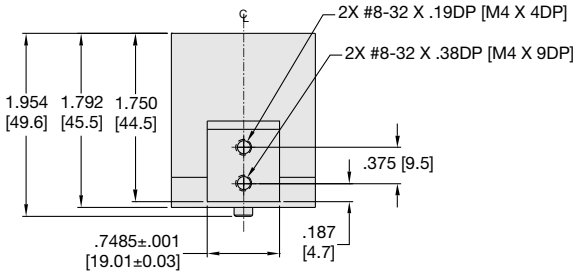








Specifications	RA-6	RA-6M
Total Rated Grip Force **F** @ 100 psi, 7 bar	44 lbs.	196 N
Stroke	15° of stroke for each finger	
Open Stroke Adjustment	15° of stroke for each finger	
Weight	0.69 lbs.	0.31 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	1.250 in.	31.8 mm
Displacement	0.300 in^3.	4.9 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.11 sec.	0.11 sec.
Accuracy	±0.005 in.	±0.13 mm
Repeatability	±0.003 in.	±0.08 mm
Valve required to actuate	4-way, 2-position	



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

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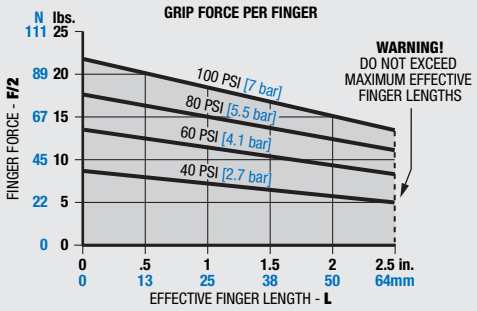
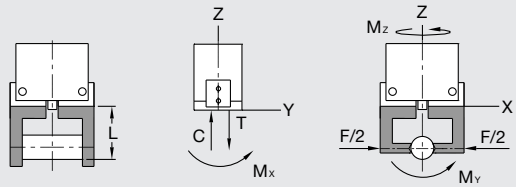




Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	20 lbs.	89 N	20 lbs.	89 N
Maximum Compressive **C**	20 lbs.	89 N	20 lbs.	89 N
Maximum Moment **Mx**	20 in.- lbs.	2.3 Nm	20 in.- lbs.	2.3 Nm
Maximum Moment **My**	20 in.- lbs.	2.3 Nm	20 in.- lbs.	2.3 Nm
Maximum Moment **Mz**	20 in.- lbs.	2.3 Nm	20 in.- lbs.	2.3 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL — METRIC

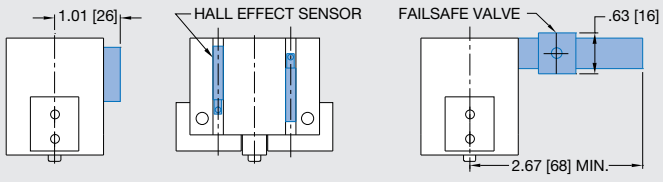
RA-6 M - V

VITON® SEALS

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
4mm NPN Magneto Resistive Sensor*	**OHSN-017**	**1 or 2**
4mm PNP Magneto Resistive Sensor*	**OHSP-017**	**1 or 2**
4mm NPN 90° Magneto Resistive Sensor*	**OHSN-011**	**1 or 2**
4mm PNP 90° Magneto Resistive Sensor*	**OHSP-011**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**

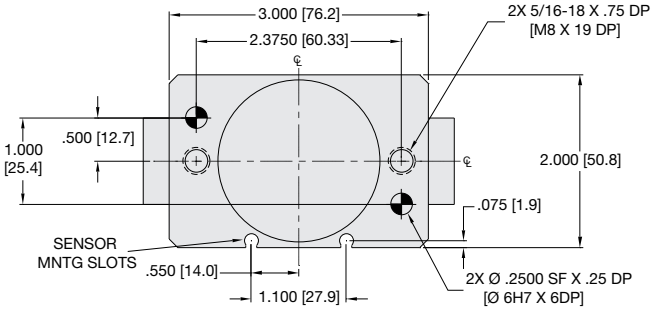
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	**OFSV-001**	**1**
Fail Safe Valve (Metric)	**OFSV-004**	**1**
Standard Seal Repair Kit	**SLKT-023**	**1**
Viton® Seal Repair Kit	**SLKT-023V**	**1**

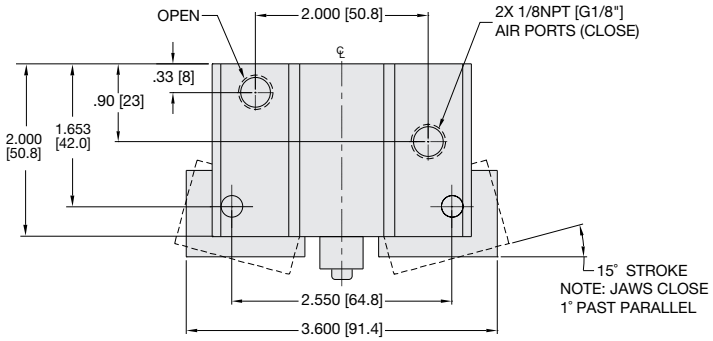
*Sensor and cable sold separately.

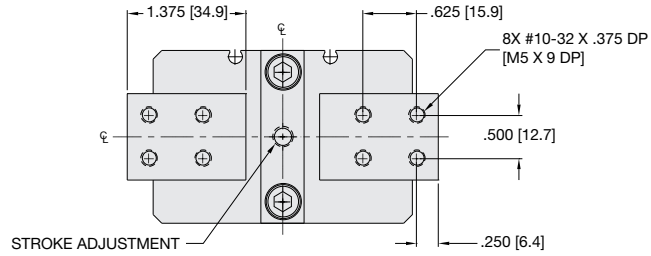


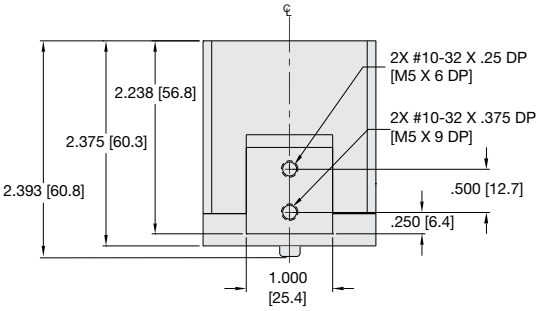
ANGULAR GRIPPER RA-7M
CAM DRIVEN SERIES

Robohand









Specifications	RA-7	RA-7M
Total Rated Grip Force **F** @ 100 psi, 7 bar	120 lbs.	534 N
Stroke	15° of stroke for each finger	
Open Stroke Adjustment	10° of stroke for each finger	
Weight	1.8 lbs.	0.8 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	1.750 in.	44.4 mm
Displacement	0.601 in^3.	9.8 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.15 sec.	0.15 sec.
Accuracy	±0.005 in.	±0.13 mm
Repeatability	±0.003 in.	±0.08 mm
Valve required to actuate	4-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

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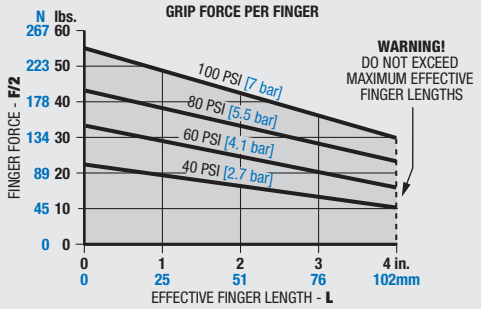
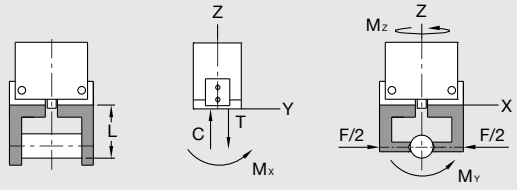




Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	60 lbs.	267 N	60 lbs.	267 N
Maximum Compressive **C**	60 lbs.	267 N	60 lbs.	267 N
Maximum Moment **Mx**	60 in.-lbs.	6.8 Nm	60 in.-lbs.	6.8 Nm
Maximum Moment **My**	60 in.-lbs.	6.8 Nm	60 in.-lbs.	6.8 Nm
Maximum Moment **Mz**	60 in.-lbs.	6.8 Nm	60 in.-lbs.	6.8 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL METRIC

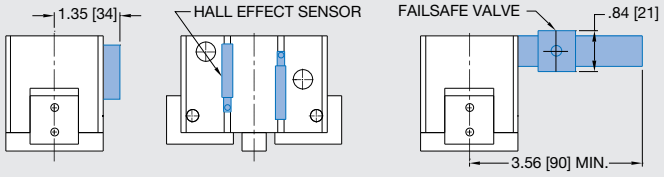
RA-7 M - V

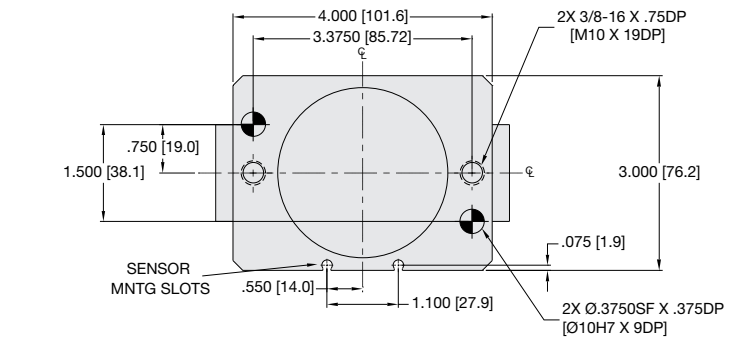
VITON® SEALS

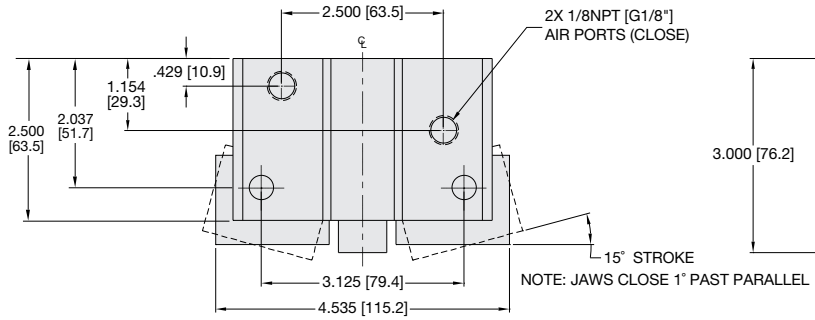
SENSOR ACCESSORIES	ORDER #	QTY/UNIT
4mm NPN Magneto Resistive Sensor*	**OHSN-017**	**1 or 2**
4mm PNP Magneto Resistive Sensor*	**OHSP-017**	**1 or 2**
4mm NPN 90° Magneto Resistive Sensor*	**OHSN-011**	**1 or 2**
4mm PNP 90° Magneto Resistive Sensor*	**OHSP-011**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**

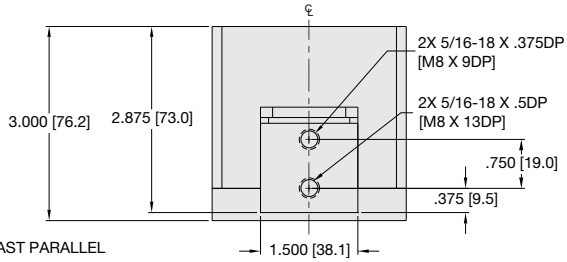
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	**OFSV-002**	**1**
Fail Safe Valve (Metric)	**OFSV-005**	**1**
Standard Seal Repair Kit	**SLKT-118**	**1**
Viton® Seal Repair Kit	**SLKT-118V**	**1**

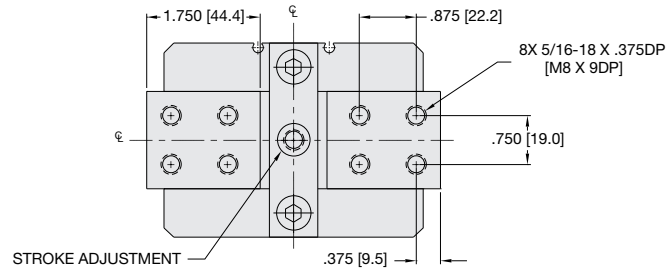
*Sensor and cable sold separately.











Specifications	RA-8	RA-8M
Total Rated Grip Force **F** @ 100 psi, 7 bar	150 lbs.	667 N
Stroke	15° of stroke for each finger	
Open Stroke Adjustment	10° of stroke for each finger	
Weight	4.6 lbs.	2.1 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	2.500 in.	63.5 mm
Displacement	1.320 in^3	21.6 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.23 sec.	0.23 sec.
Accuracy	±0.005 in.	±0.13 mm
Repeatability	±0.003 in.	±0.08 mm
Valve required to actuate	4-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

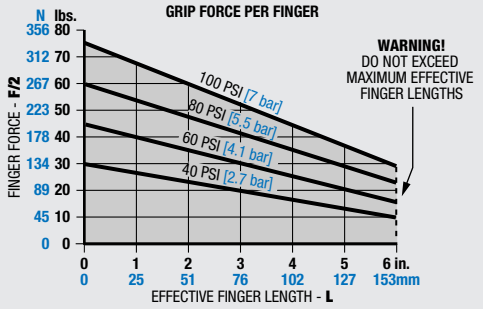
Third Angle Projection

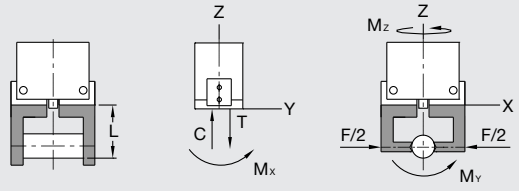
All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	90 lbs.	400 N	90 lbs.	400 N
Maximum Compressive **C**	90 lbs.	400 N	90 lbs.	400 N
Maximum Moment M_X	90 in.-lbs.	10.2 Nm	90 in.-lbs.	10.2 Nm
Maximum Moment M_Y	90 in.-lbs.	10.2 Nm	90 in.-lbs.	10.2 Nm
Maximum Moment M_Z	90 in.-lbs.	10.2 Nm	90 in.-lbs.	10.2 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Separately)

BASIC MODEL METRIC

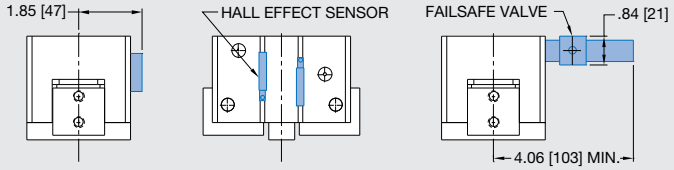
RA-8 M - V

VITON® SEALS

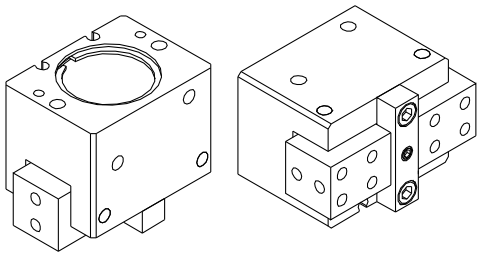
SENSOR ACCESSORIES	ORDER #	QTY/UNIT
4mm NPN Magneto Resistive Sensor*	**OHSN-017**	**1 or 2**
4mm PNP Magneto Resistive Sensor*	**OHSP-017**	**1 or 2**
4mm NPN 90° Magneto Resistive Sensor*	**OHSN-011**	**1 or 2**
4mm PNP 90° Magneto Resistive Sensor*	**OHSP-011**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**

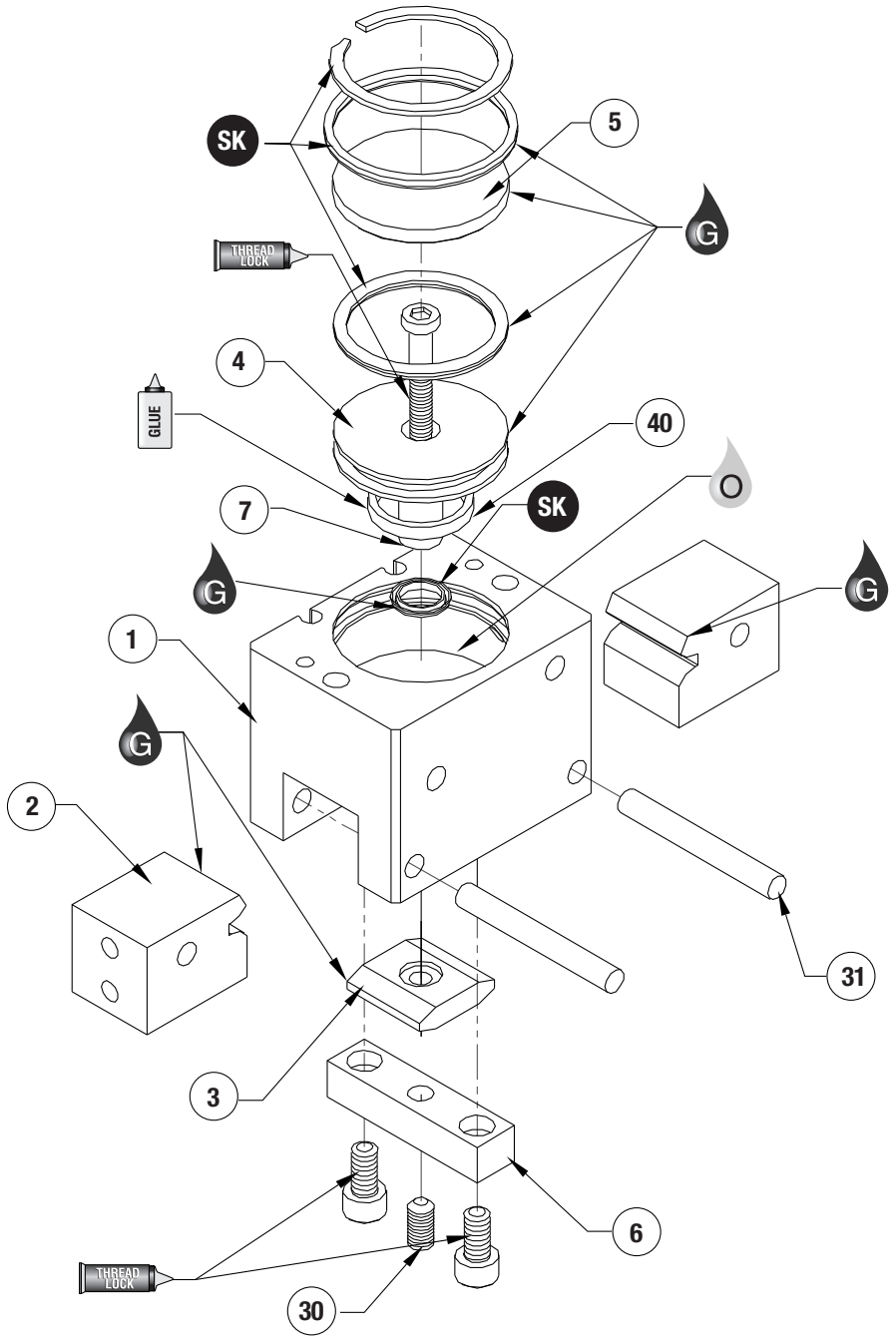
PNEUMATIC ACCESSORIES		
Fail Safe Valve (Imperial)	**OFSV-002**	**1**
Fail Safe Valve (Metric)	**OFSV-005**	**1**
Standard Seal Repair Kit	**SLKT-119**	**1**
Viton® Seal Repair Kit	**SLKT-119V**	**1**

*Sensor and cable sold separately.



RA-5, 6, 7, 8 Series Exploded View





Item	Qty	Name
01	1	Body
02	2	Jaw
03	1	Wedge
04	1	Piston
05	1	Cap
06	1	Plate, Adjustment
07	1	Shaft
30	1	SSS, Nylon Patch, Cup Point
31	2	Dowel Pin
40	2	Magnet

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

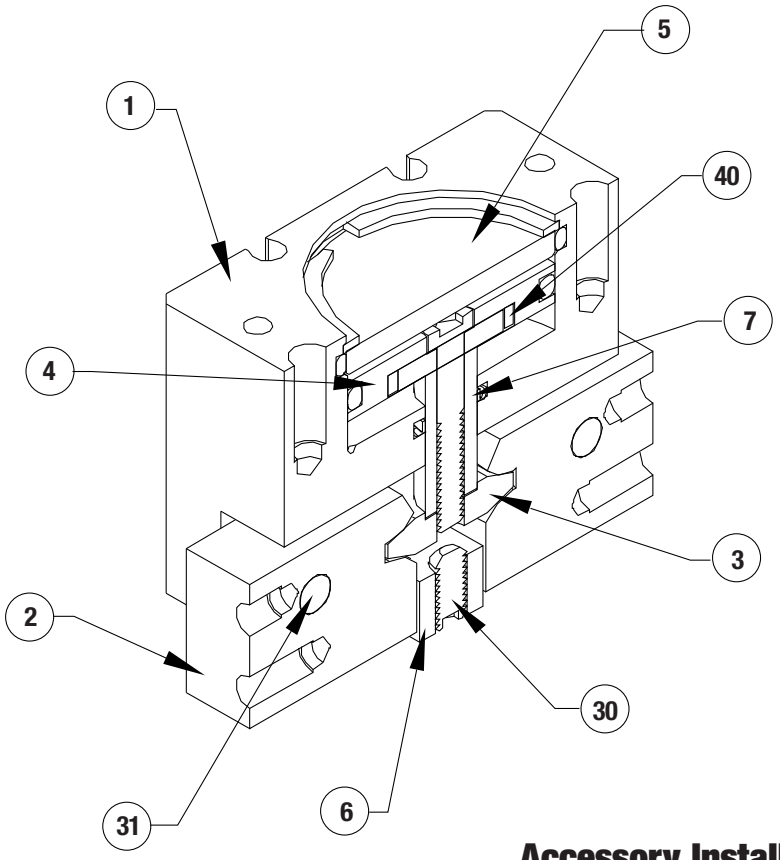
Assembly Procedure

1) Lubricate and install seals.
2) Glue magnet into piston.
3) Install piston and wedge.
4) Install jaws (press dowel pins through fingers from air port side).
5) Install cap and retaining ring.
6) Install adjustment plate.
7) Set adjustment screw for desired stroke.

NOTE: Item #7 on RA-7&8 only.

SK Seal Repair Kit Order #'s See Product Data Sheets

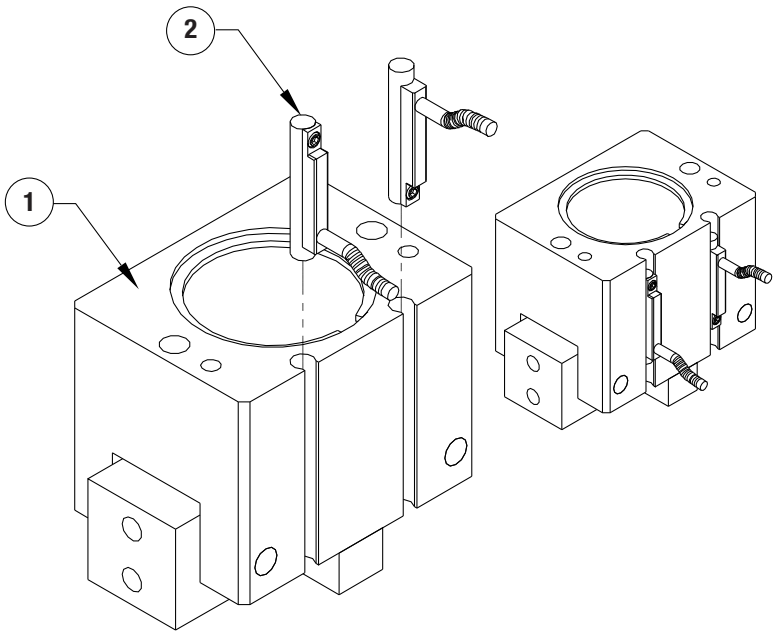
SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection



Item	Qty	Name
01	1	Body
02	2	Jaw
03	1	Wedge
04	1	Piston
05	1	Cap
06	1	Plate, Adjustment
07	1	Shaft
30	1	SSS, Nylon Patch, Cup Point
31	2	Dowel Pin
40	2	Magnet

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Accessory Installation & Adjustment Instructions



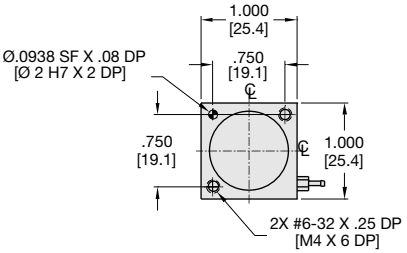
Installation

1) Install sensors in profile slots as shown.
2) Set with integrated set screw.

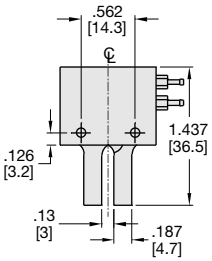
SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection

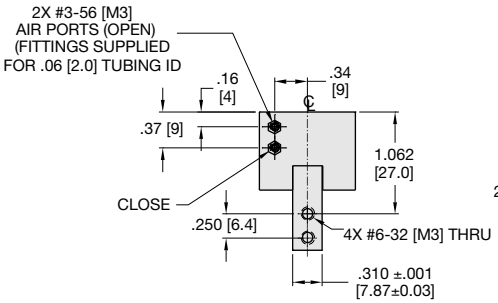
ANGULAR GRIPPER RA-10M
CAM DRIVEN SERIES

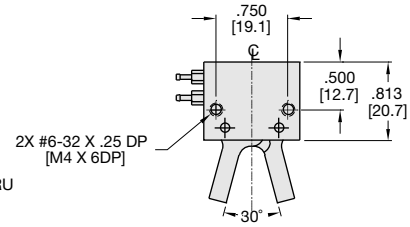
Robohand



Specifications	RA-10	RA-10M
Total Rated Grip Force **F** @ 100 psi, 7 bar	16 lbs.	71 N
Stroke	15° of stroke for each finger	
Weight	0.063 lbs.	0.03 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	.813 in.	20.6 mm
Displacement	0.026 in^3.	.4 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation Time	0.08 sec.	0.08 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	





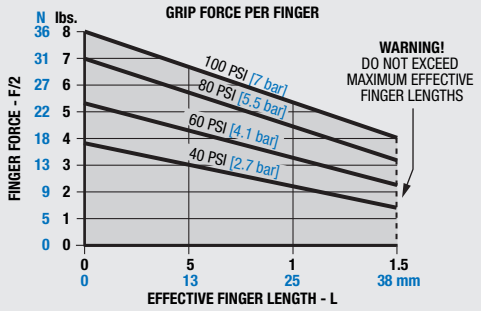


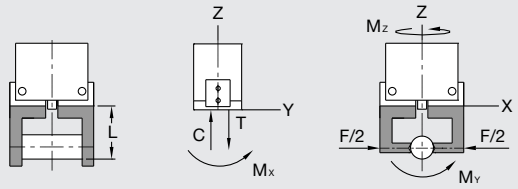
NOTE: JAWS CLOSE 1° PAST PARALLEL

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	5 lbs.	22 N	5 lbs.	22 N
Maximum Compressive **C**	5 lbs.	22 N	5 lbs.	22 N
Maximum Moment M_x	5 in.-lbs.	0.6 Nm	5 in.-lbs.	0.6 Nm
Maximum Moment M_y	5 in.-lbs.	0.6 Nm	5 in.-lbs.	0.6 Nm
Maximum Moment M_z	5 in.-lbs.	0.6 Nm	5 in.-lbs.	0.6 Nm

†Capacities are per set of jaws and are not simultaneous

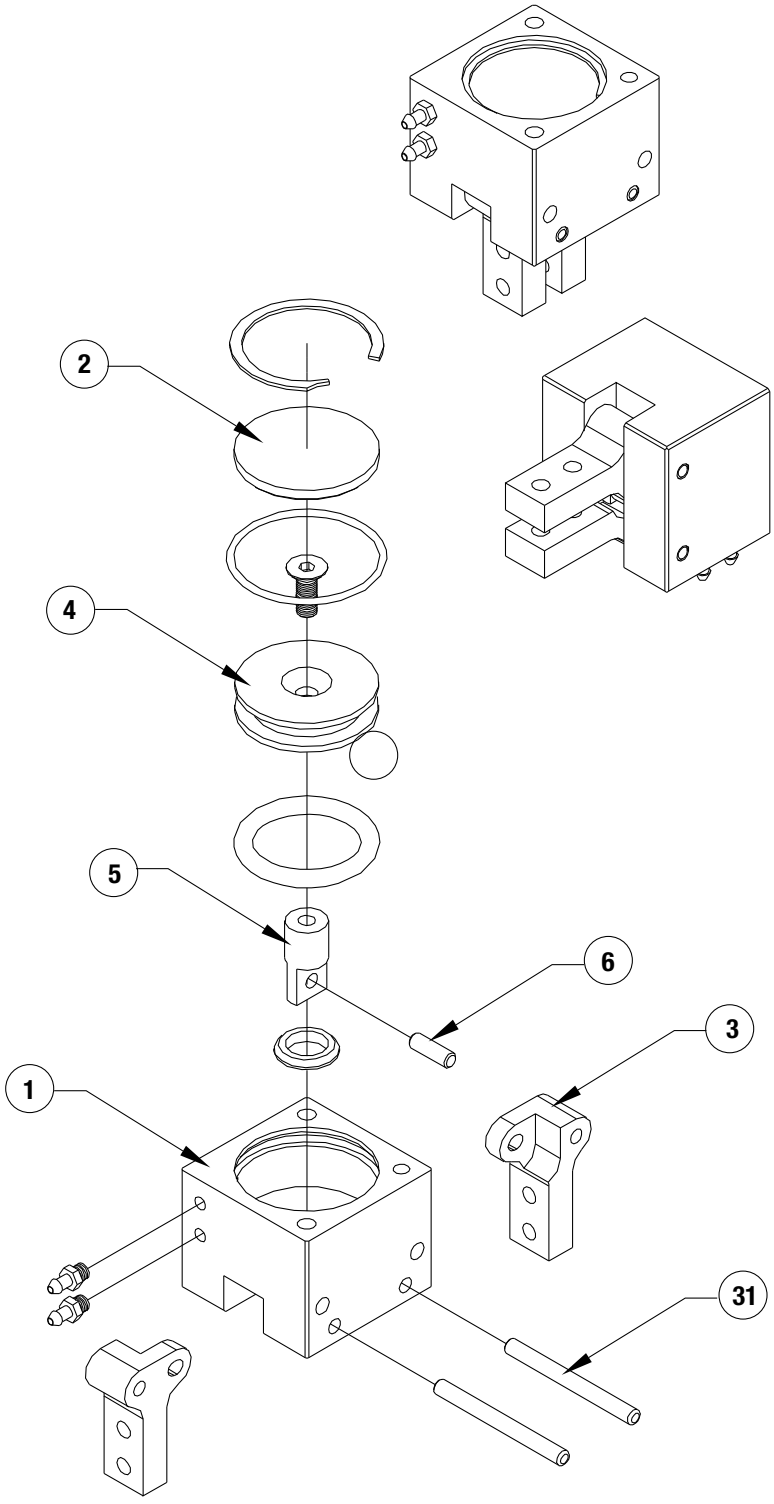
How to Order: (Order Separately)

BASIC MODEL METRIC

RA-10 M - V

VITON® SEALS

PNEUMATIC ACCESSORIES	Order #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-018**	**1**
Viton® Seal Repair Kit	**SLKT-018V**	**1**



Item	Qty	Name
01	1	Body
02	1	Cap
03	2	Jaw
04	1	Piston
05	1	Shaft
06	1	Pin
31	2	Dowel Pin

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

SK Seal Repair Kit Order #'s See Product Data Sheet

SK Seal Kit Items

THREAD LOCK Thread Locker

KRYTOX Krytox™ Lubricant

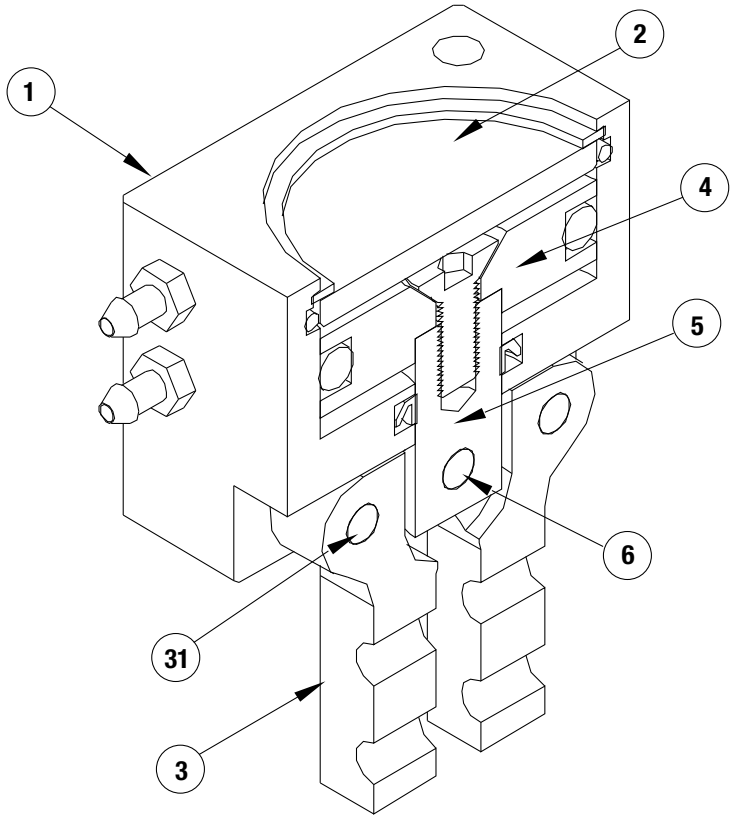
O Lightweight Machine Oil

G Teflon® Based Grease

GLUE Super Bonder

Third Angle Projection

RA-10 Series Assembled View



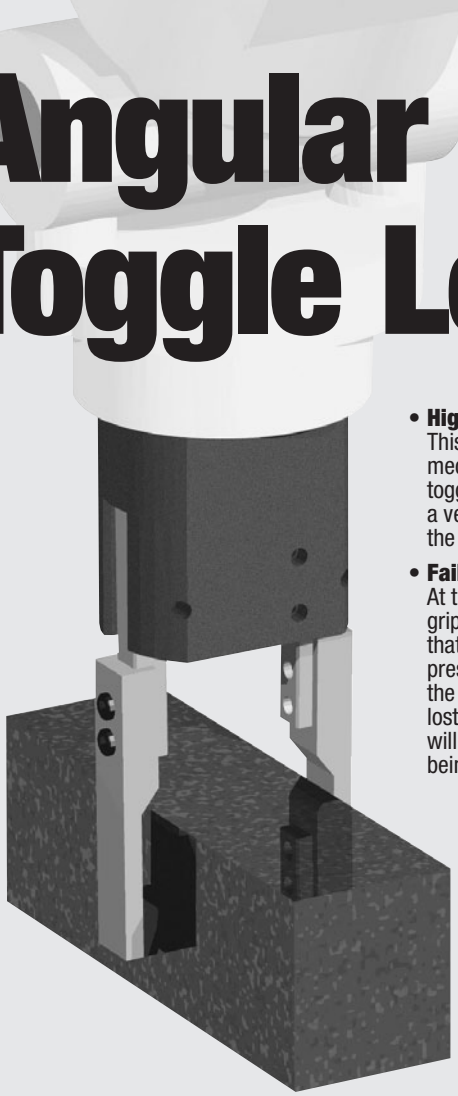
Item	Qty	Name
01	1	Body
02	1	Cap
03	2	Jaw
04	1	Piston
05	1	Shaft
06	1	Pin
31	2	Dowel Pin

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

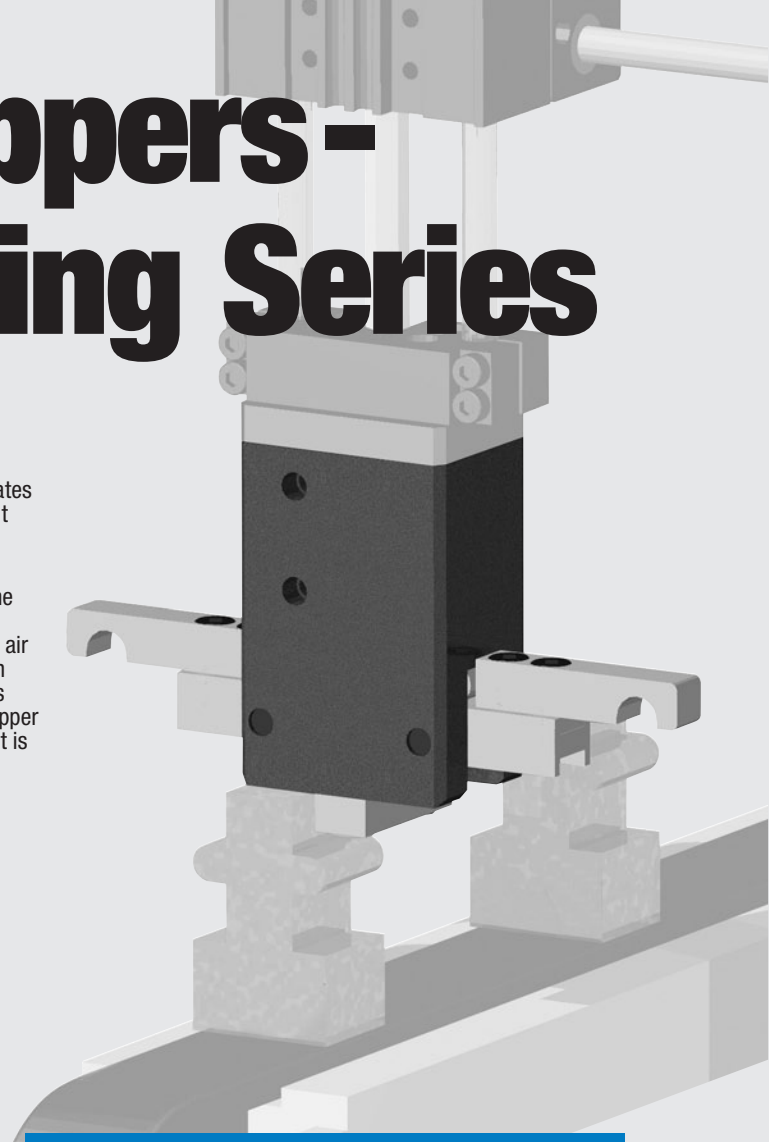
SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
Lightweight Machine Oil
Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection

DESIGN NOTES

Angular Grippers - Toggle Locking Series

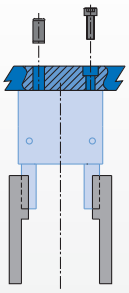


- **High gripping force:** This style gripper uses the mechanical advantage of a toggle mechanism that creates a very high gripping force at the completion of stroke.
- **Fail safe locking:** At the full closed position the gripper locks in such a way that it cannot unlock unless air pressure is supplied to open the gripper. If air pressure is lost catastrophically, the gripper will not release the part that is being held.

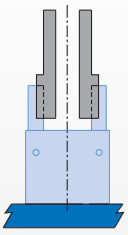


Mounting Information:

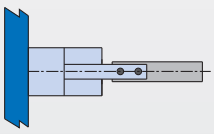
Grippers can be mounted & operated in any orientation

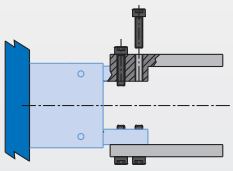


Body mounts with screws and locates with slip fit dowel pins for accuracy



Warning! Protect drive and bearing mechanism from falling debris when mounted upside down





Fingers attach to jaws with screws and locate by keying

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

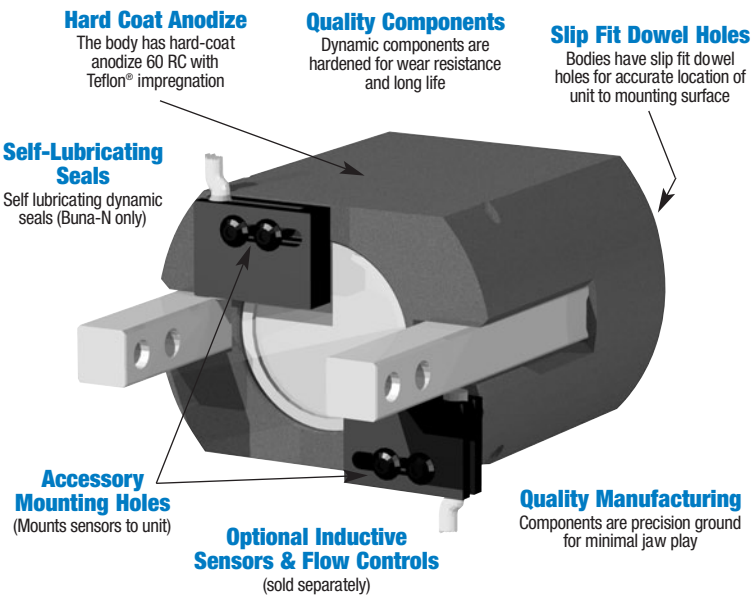
Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~300° F**	**-30°~150° C**

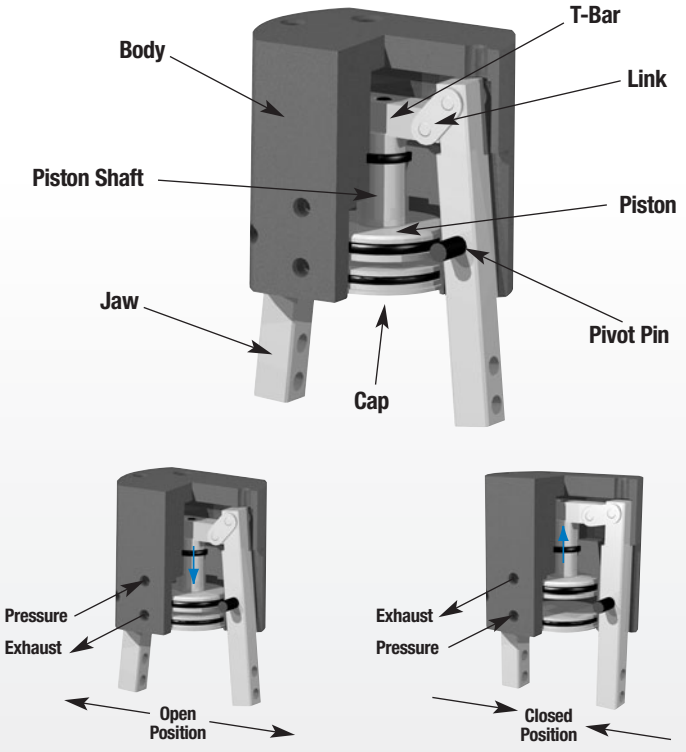
Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features



Operating Principle



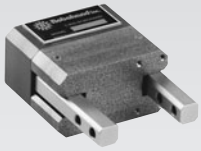
- A double acting piston is connected by a shaft to a "T"-bar.
- The "T"-bar is connected to a set of linkages which are attached to the jaws. The jaws pivot about a pivot pin converting the linear motion of the "T"-bar into synchronous angular motion of the jaws.
- This gripper is suitable for internal gripping without locking or external gripping with locking.

Designed and manufactured in the USA

Style-RA Angular Gripper

Size -15M

	RA-15	RA-15M
Style:		
Stroke:	6° each finger	
Grip Force:	70 lbs.	311 N
Weight:	.31 lbs.	.14 Kg

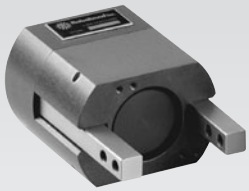


See Page 2.32

Style-RA Angular Gripper

Size -25M

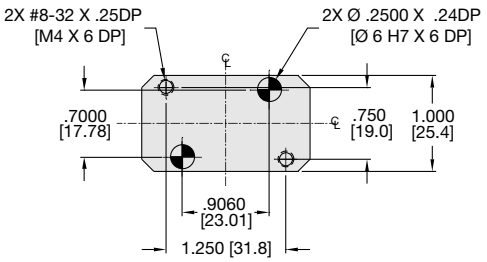
	RA-25	RA-25M
Style:		
Stroke:	6° each finger	
Grip Force:	250 lbs.	1112 N
Weight:	1.1 lbs.	.48 Kg



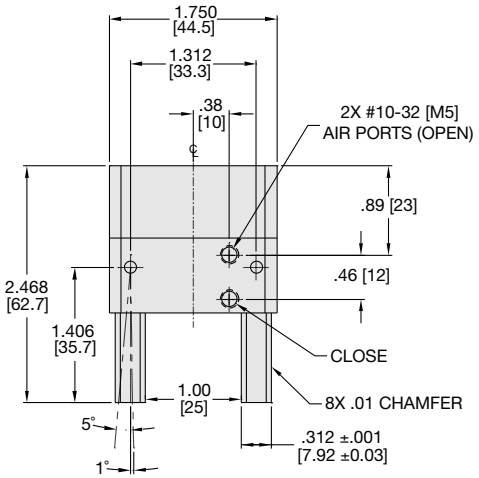
See Page 2.33

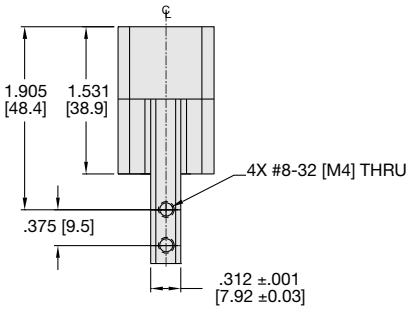
ANGULAR GRIPPER RA-15M
TOGGLE LOCKING SERIES

Robohand



Specifications	RA-15	RA-15M
Total Rated Grip Force **F** @ 100 psi, 7 bar	70 lbs.	311 N
Stroke	6° of stroke for each finger	
Weight	0.31 lbs.	0.14 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	.750 in.	19.1 mm
Displacement	0.110 in^3.	1.8 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.10 sec.	0.10 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	



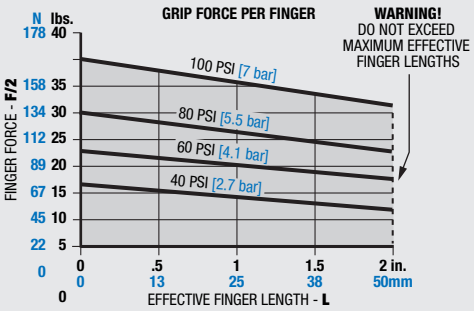


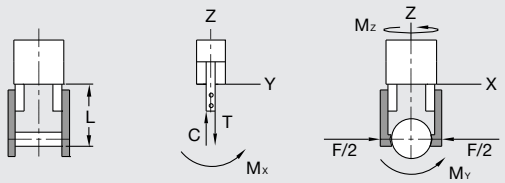
JAW SHOWN PARALLEL
JAW WILL CLOSE 1° PAST PARALLEL

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	50 lbs.	222 N	20 lbs.	89 N
Maximum Compressive **C**	50 lbs.	222 N	20 lbs.	89 N
Maximum Moment **Mx**	60 in.-lbs.	6.8 Nm	20 in.-lbs.	2.3 Nm
Maximum Moment **My**	120 in.-lbs.	13.6 Nm	40 in.-lbs.	4.5 Nm
Maximum Moment **Mz**	60 in.-lbs.	6.8 Nm	20 in.-lbs.	2.3 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

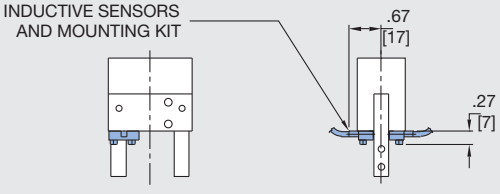
BASIC MODEL METRIC

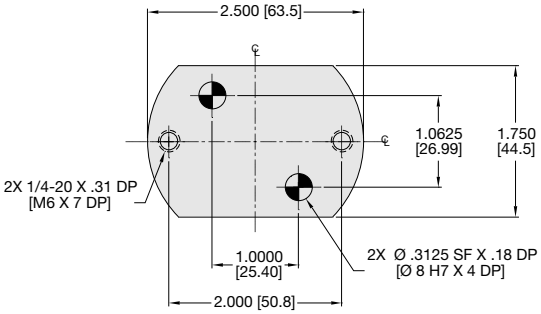
RA-15 M - V

VITON® SEALS

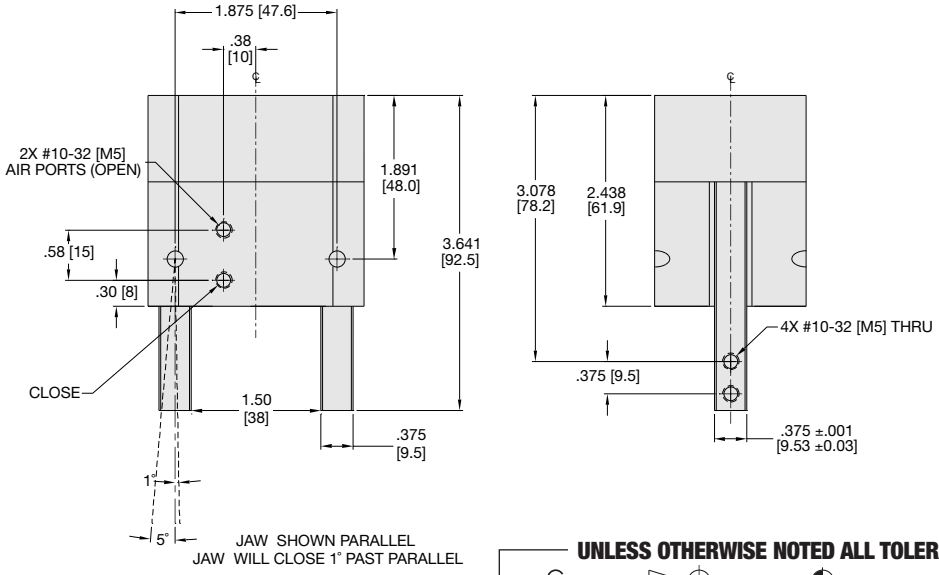
SENSOR ACCESSORIES*	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	**OSMK-018**	**1**
3mm NPN Inductive Sensor with Quick Disconnect*	**OISN-019**	**1 or 2**
3mm PNP Inductive Sensor with Quick Disconnect*	**OISP-019**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**
PNEUMATIC ACCESSORIES		
Standard Seal Repair Kit	**SLKT-019**	**1**
Viton® Seal Repair Kit	**SLKT-019V**	**1**

*Sensor and cable sold separately





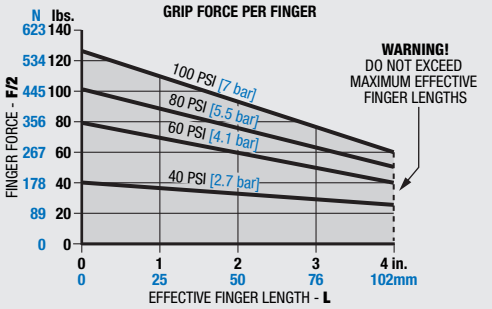
Specifications	RA-25	RA-25M
Total Rated Grip Force **F** @ 100 psi, 7 bar	250 lbs.	1112 N
Stroke	6° of stroke for each finger	
Weight	1.06 lbs.	0.48 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	1.250 in.	31.8 mm
Displacement	0.046 in^3.	0.8 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.12 sec.	0.12 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	

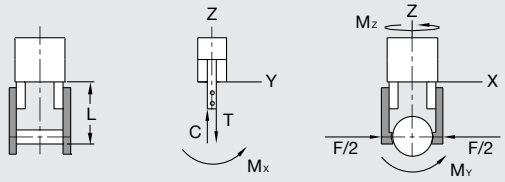


UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	150 lbs.	667 N	50 lbs.	222 N
Maximum Compressive **C**	150 lbs.	667 N	50 lbs.	222 N
Maximum Moment **Mx**	200 in.-lbs.	22.6 Nm	60 in.-lbs.	6.8 Nm
Maximum Moment **My**	300 in.-lbs.	33.9 Nm	75 in.-lbs.	8.5 Nm
Maximum Moment **Mz**	200 in.-lbs.	22.6 Nm	60 in.-lbs.	6.8 Nm

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

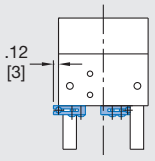
BASIC MODEL | METRIC

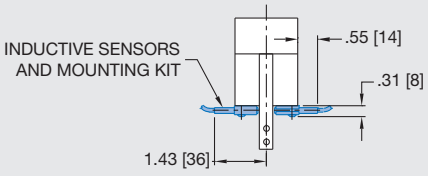
RA-25 M - V

VITON® SEALS

SENSOR ACCESSORIES*	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	**OSMK-019**	**1**
3mm NPN Inductive Sensor with Quick Disconnect*	**OISN-014**	**1 or 2**
3mm PNP Inductive Sensor with Quick Disconnect*	**OISP-014**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**
PNEUMATIC ACCESSORIES		
Standard Seal Repair Kit	**SLKT-020**	**1**
Viton® Seal Repair Kit	**SLKT-020V**	**1**

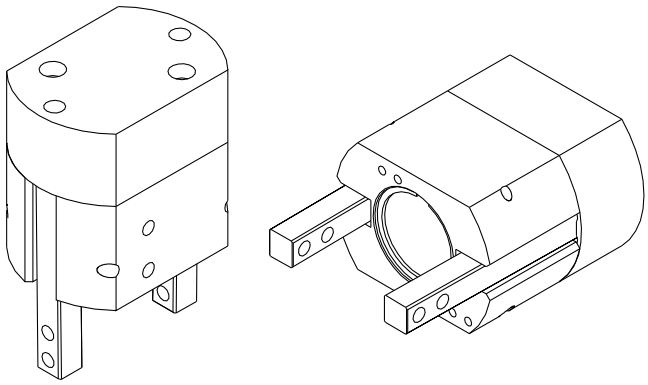
*Sensor and cable sold separately

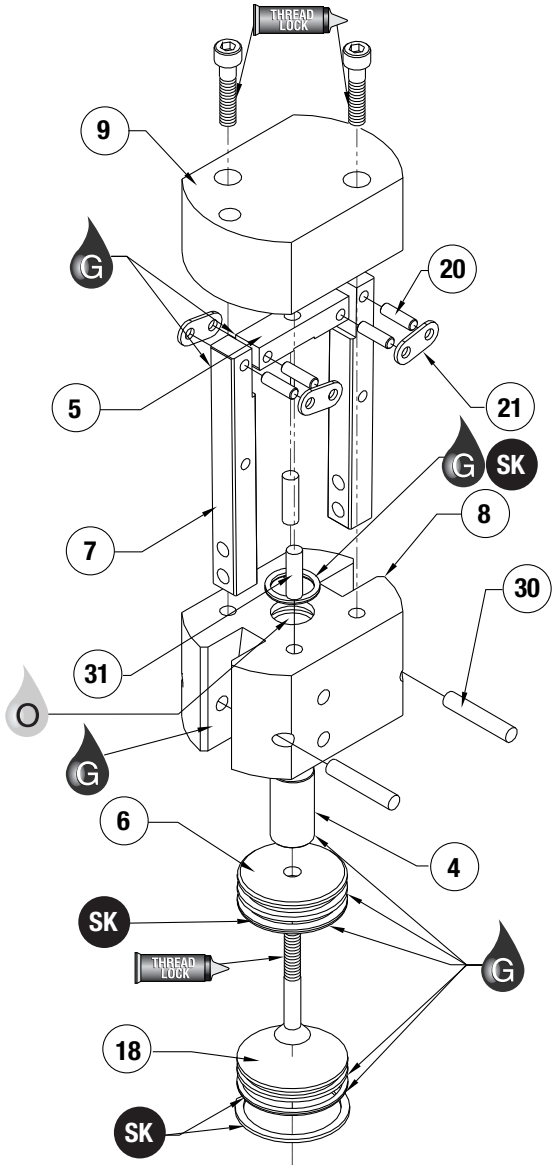




RA-15 & 25 Series Exploded View

Robohand





Item	Qty	Name
04	1	Shaft
05	1	Cross Bar
06	1	Piston
07	2	Jaw
08	1	Body
09	1	Cap
18	1	Plug
20	4	Pin
21	4	Link
30	2	Dowel Pin
31	2	Dowel Pin

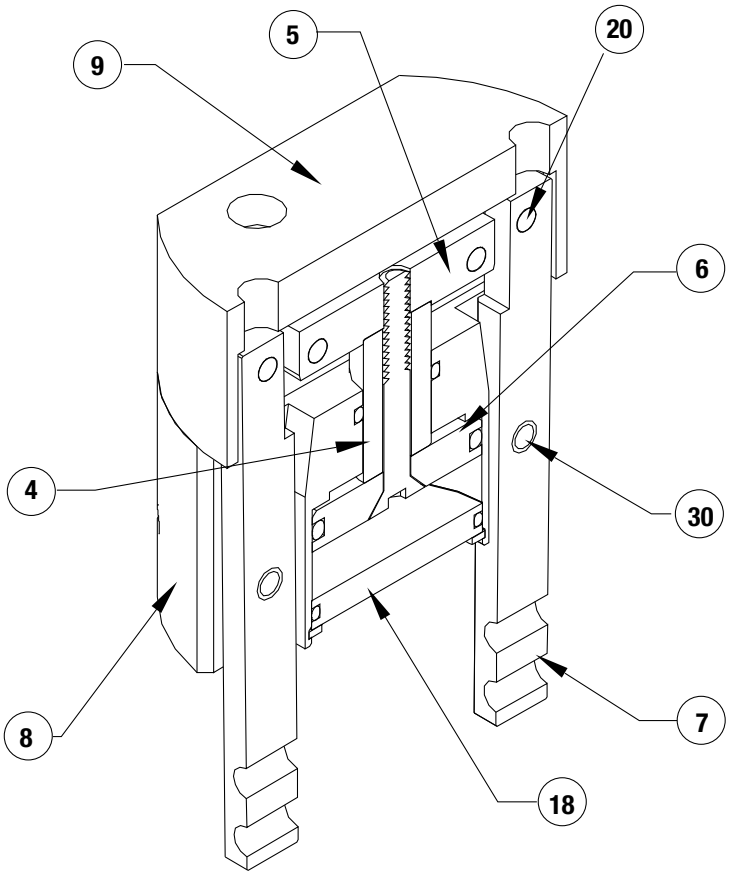
NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedure

1) Lubricate and install seals.
2) Install piston and shaft into body.
3) Install jaws.
4) Press dowel pins through fingers from air port side.
5) Install links and cross bar.
6) Install cap on body.
7) Install plug and retaining ring.

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection



Item	Qty	Name
04	1	Shaft
05	1	Cross Bar
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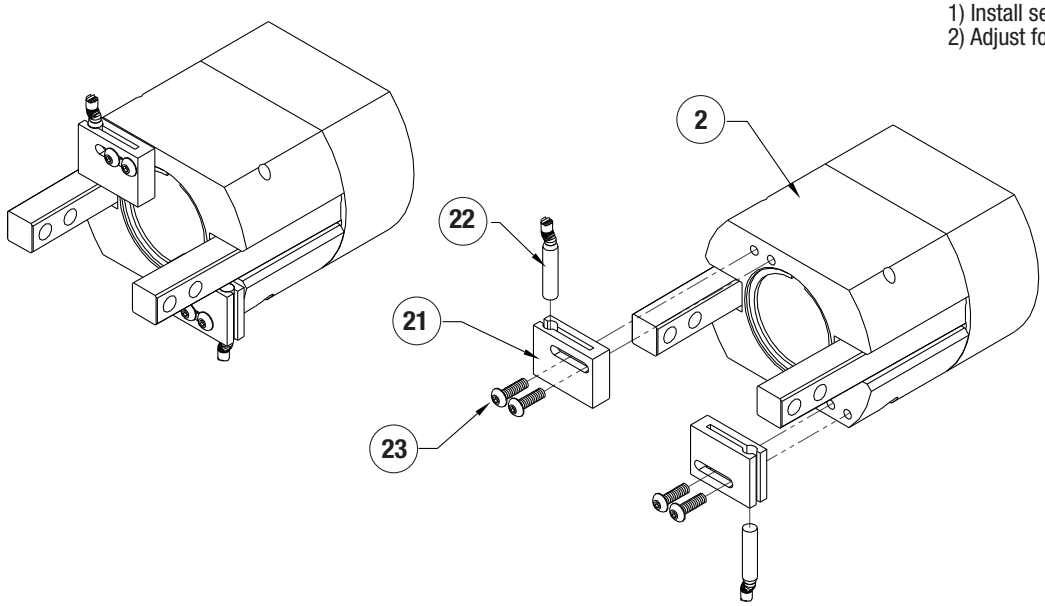
07	2	Jaw
08	1	Body
09	1	Cap
18	1	Plug
20	4	Pin
21	4	Link
30	2	Dowel Pin
31	2	Dowel Pin

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

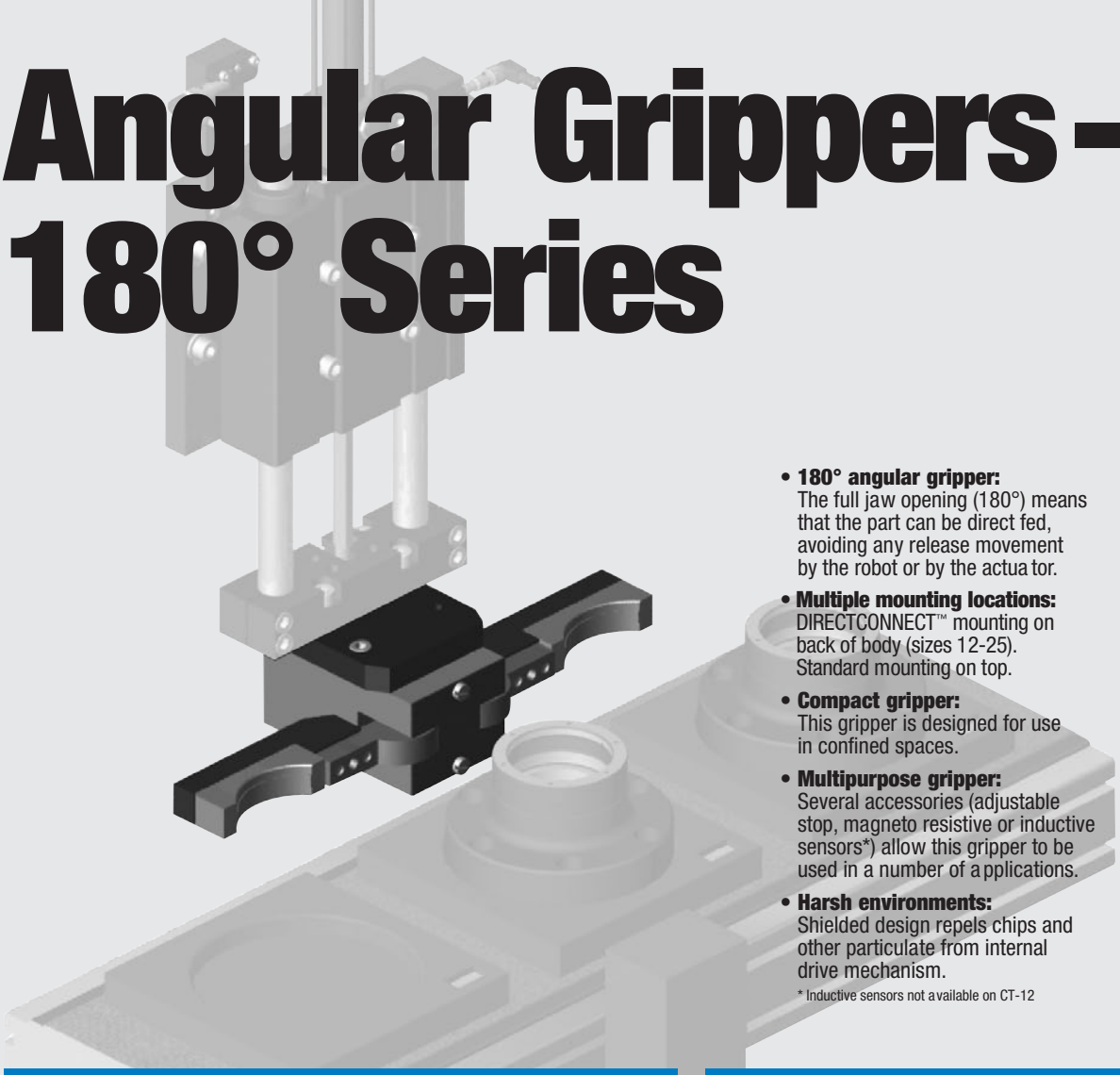
Accessory Installation & Adjustment Instructions

1) Install sensors as shown.
2) Adjust for open/closed stroke sensors.



SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection

Angular Grippers - 180° Series



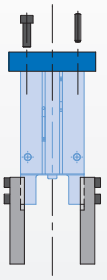
- **180° angular gripper:** The full jaw opening (180°) means that the part can be direct fed, avoiding any release movement by the robot or by the actuator.
- **Multiple mounting locations:** DIRECTCONNECT™ mounting on back of body (sizes 12-25). Standard mounting on top.
- **Compact gripper:** This gripper is designed for use in confined spaces.
- **Multipurpose gripper:** Several accessories (adjustable stop, magneto resistive or inductive sensors*) allow this gripper to be used in a number of applications.
- **Harsh environments:** Shielded design repels chips and other particulate from internal drive mechanism.

* Inductive sensors not available on CT-12

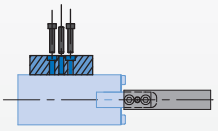
Mounting Information:

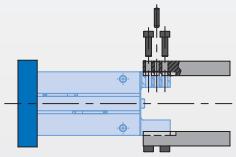
Grippers can be mounted & operated in any orientation

Gripper is located from the top with 2 dowel pins and assembled with 2 screws.



DIRECTCONNECT mounting pattern: Gripper is located with 2 dowel pins and assembled with 4 screws. Alternative pattern: Gripper is located with 2 dowel pins and assembled with 2 screws.





Fingers are centered over the jaws, located with 1 dowel pin and assembled with 2 screws.

The gripper is protected from falling debris when it is mounted and operated upside down.

Gripper can be operated utilizing top manifold air ports.

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (Standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (Optional)	**-20°~300° F**	**-30°~150° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

*Addition of lubrication will greatly increase service life
†See Maintenance Section

DIRECTCONNECT™

Product Features

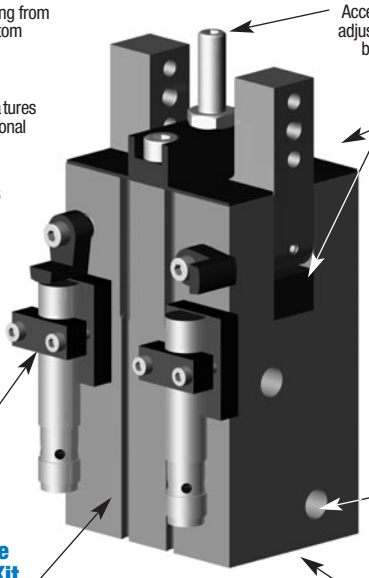
Gripper Attachment
Gripper mounting from side or bottom

Viton Seals
Viton seals for high temperatures (-20°F to +300°F) are optional

Quality Components
Made from aluminum alloy anodized with Teflon™ impregnation. The gripper's main components are made of heat treated steel.

Inductive Sensor Mounting Kit
Accessory (SD) in order to sense jaw position. Comes with 2 holders for tubular sensors and 2 adjustable flags (except size -12).

Magneto Resistive Sensor Mounting Kit
Standard mounting slots for magneto resistive sensors. (sensors sold separately)



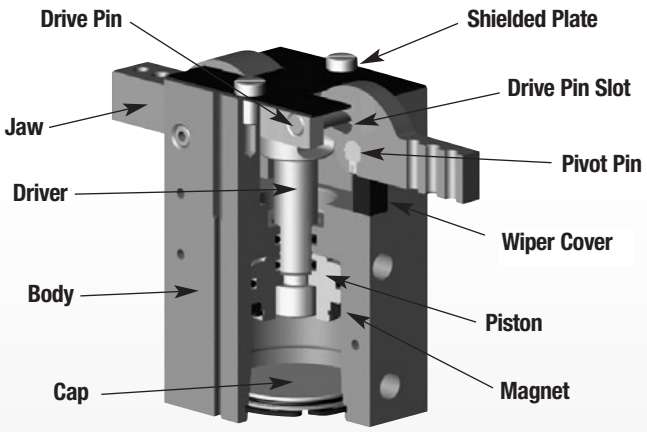
Adjustable Stop
Accessory (BR) in order to adjust the opening of jaws, between 0° to 180°

Shielded Plate and Wiper Covers
Gripper body is shielded to repel chips and other particulate from internal drive mechanism

DIRECTCONNECT Mounting Patterns
DIRECTCONNECT™ mounting surface on back of body (sizes 12-25)

Multiple Air Ports
Side or top air ports (top ports require O-ring)

Operating Principle



- A double acting piston, with a ring magnet for magneto resistive sensing, is connected to a fork driver on which 2 drive pins are fixed.
- Jaw rotation is synchronized with the drive pin-jaw assembly.
- Sliding in these slots, drive pins convert vertical motion of the piston into rotating opposite synchronous motion of both jaws.
- Each jaw has a useful rotation stroke of 90°, between the 90° open position and the 0° gripping position, plus a gripping over-stroke of approximately 1.5° before reaching the fully gripped position. Jaws have to be designed for a 0° gripping position (parallel jaws)

Style-DCT Angular Gripper

Size -12M

Style:	**DCT-12M**
Stroke:	90° each finger
Grip Force:	7.2 lbs 32 N
Weight:	0.20 lbs 0.09 Kg

See Page **2.38**

Style-DCT Angular Gripper

Size -16M

Style:	**DCT-16M**
Stroke:	90° each finger
Grip Force:	16 lbs 70 N
Weight:	0.35 lbs 0.16 Kg

See Page **2.39**

Style-DCT Angular Gripper

Size -20M

Style:	**DCT-20M**
Stroke:	90° each finger
Grip Force:	25 lbs 112 N
Weight:	0.62 lbs 0.28 Kg

See Page **2.40**

Style-DCT Angular Gripper

Size -25M

Style:	**DCT-25M**
Stroke:	90° each finger
Grip Force:	35 lbs 157 N
Weight:	1.08 lbs 0.49 Kg

See Page **2.41**

Style-CT Angular Gripper

Size -32M

Style:	**CT-32M**
Stroke:	90° each finger
Grip Force:	61 lbs 272 N
Weight:	1.59 lbs 0.72 Kg

See Page **2.42**

Style-CT Angular Gripper

Size -40M

Style:	**CT-40M**
Stroke:	90° each finger
Grip Force:	100 lbs 446 N
Weight:	2.60 lbs 1.18 Kg

See Page **2.43**

Style-CT Angular Gripper

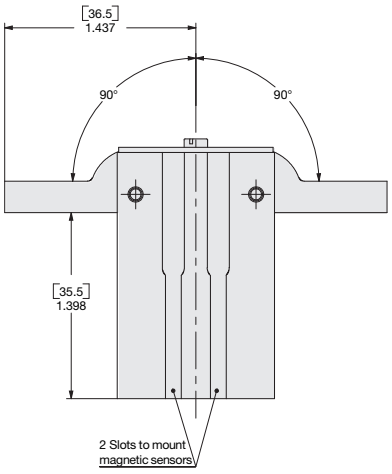
Size -50M

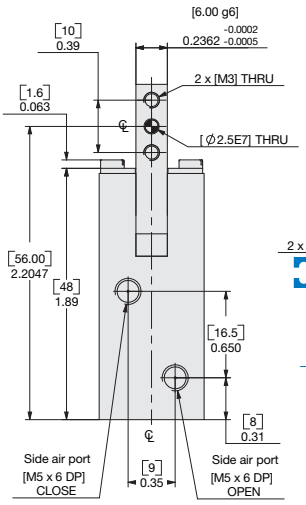
Style:	**CT-50M**
Stroke:	90° each finger
Grip Force:	146 lbs 651 m
Weight:	4.00 lbs 1.82 Kg

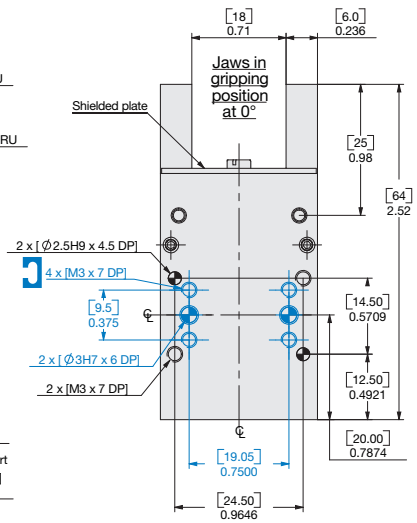
See Page **2.44**

ANGULAR GRIPPER DCT-12M
180° SERIES

Robohand

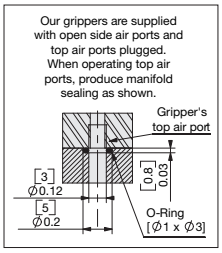


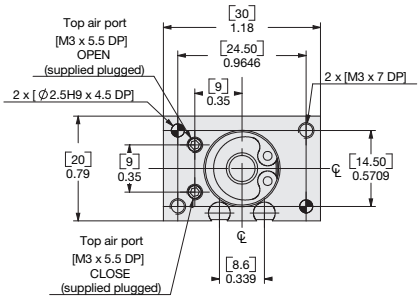




Specifications

	DCT-12M	
Total Rated Grip Force, **F** @ 100 psi [7 bar]		
L = 1 in. [25mm] @ 0°	7.2 lbs.	32 N
Stroke	90° of stroke for each finger	
Weight	0.20 lbs.	0.09 Kg
Pressure Range	40-100 psi	3-7 Bar
Cylinder Bore Ø	0.472 in.	12 mm
Displacement	0.117 in³.	1.92 cm³
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.06 sec.	0.06 sec.
Accuracy	±0.0028 in.	±0.07 mm
Repeatability	±0.002 in.	±0.05 mm
Valve required to actuate	4-way, 2-position	





NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

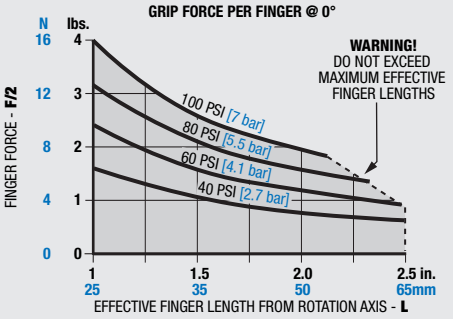
Metric Threads Course Pitch

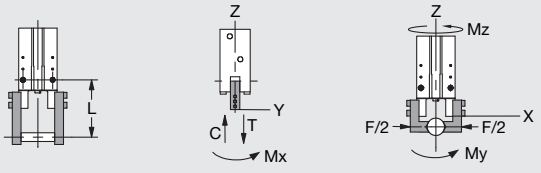
Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

NOTE: Jaws have to be designed for a 0° gripping position (parallel ja ws). Jaws will close 1.5° past parallel. To limit shocks at the end of an opening or closing stroke, it is highly recommended to design ja ws with minimal inertia (as light and short as possible).

Flow Controls make it possible to reduce the rota tion speed and are highly recommended.

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	11 lbs.	47 N	2 lbs.	9.4 N
Maximum Compressive **C**	11 lbs.	47 N	2 lbs.	9.4 N
Maximum Moment **Mx**	10 in.-lbs.	1.1 Nm	3 in.-lbs.	0.3 Nm
Maximum Moment **My**	10 in.-lbs.	1.1 Nm	3 in.-lbs.	0.3 Nm
Maximum Moment **Mx**	10 in.-lbs.	1.1 Nm	3 in.-lbs.	0.3 Nm

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL

DCT-12M-V

SIZE — VITON® SEALS

NOTE: DCT-12 can be used as an exact replacement for CT-12

SENSOR ACCESSORIES*

PNP Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSN-017**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**

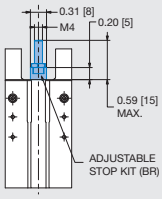
PNEUMATIC ACCESSORIES

Adj. Flow Control M5 Elbow - 6mm OD Push-in (Metric)	**VLVF-008**	**1 or 2**
Buna-N Seal Repair Kit	**SLKT-159**	**1**
Viton® Seal Repair Kit	**SLKT-159V**	**1**

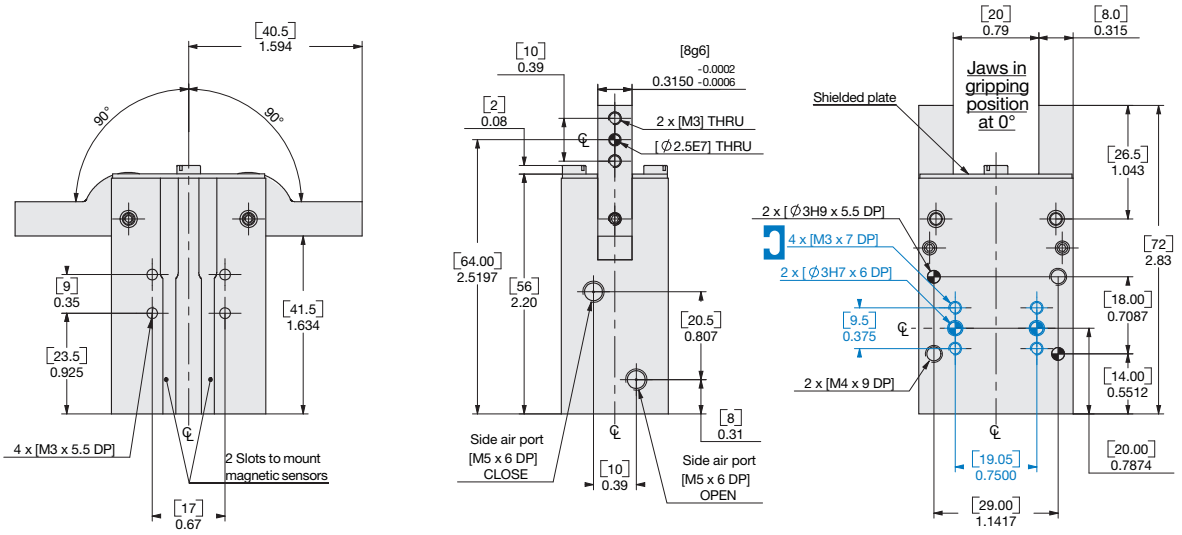
MOUNTING ACCESSORIES

Adjustment Stop Kit (1 Shielded Plate + 1 Stop)	**KP-DCT12-BR**	**1**

*Sensor and cable sold separately.

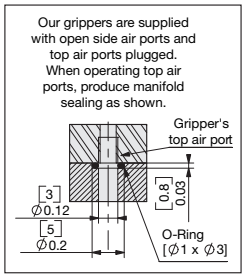


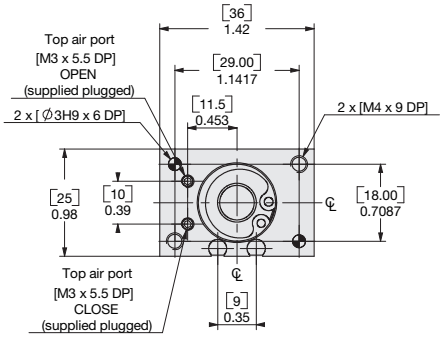
DIRECTCONNECT™



Specifications

	DCT-16M	
Total Rated Grip Force, **F** @ 100 psi [7 bar]		
L = 1 in. [25mm] @ 0°	16 lbs.	70 N
Stroke	90° of stroke for each finger	
Weight	0.35 lbs.	0.16 Kg
Pressure Range	40-100 psi	3-7 Bar
Cylinder Bore Ø	0.630 in.	16 mm
Displacement	0.251 in^3.	4.12 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.13 sec.	0.13 sec.
Accuracy	±0.0028 in.	±0.07 mm
Repeatability	±0.002 in.	±0.05 mm.
Valve required to actuate	4-way, 2-position	





NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

NOTE: Jaws have to be designed for a 0° gripping position (parallel ja ws). Jaws will close 1.5° past parallel. To limit shocks at the end of an opening or closing stroke, it is highly recommended to design ja ws with minimal inertia (as light and short as possible).

Flow Controls make it possible to reduce the rota tion speed and are highly recommended.

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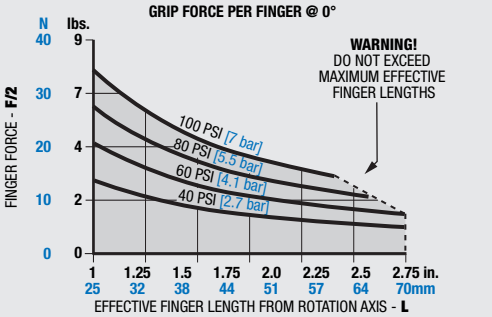
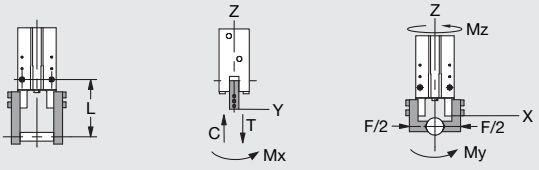




Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	20 lbs.	90 N	4 lbs.	18 N
Maximum Compressive **C**	20 lbs.	90 N	4 lbs.	18 N
Maximum Moment M_x	26 in.-lbs.	2.9 Nm	6 in.-lbs.	0.7 Nm
Maximum Moment M_y	26 in.-lbs.	2.9 Nm	6 in.-lbs.	0.7 Nm
Maximum Moment M_z	26 in.-lbs.	2.9 Nm	6 in.-lbs.	0.7 Nm

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL

DCT-16M-V

SIZE — VITON® SEALS

NOTE: DCT-16 can be used as an exact replacement for CT-16

SENSOR ACCESSORIES*

PNP Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSN-017**	**1 or 2**
Inductive Sensor Mounting Kit (mounts 2 sensors)	**SDCT16-20**	**1**
4mm PNP Inductive Sensor with Quick Disconnect*	**OISP-014**	**1 or 2**
4mm NPN Inductive Sensor with Quick Disconnect*	**OISN-014**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**

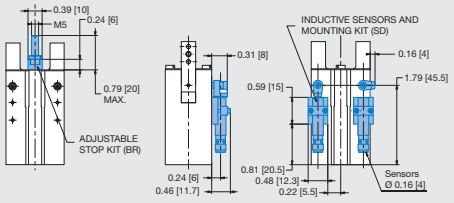
PNEUMATIC ACCESSORIES

Adj. Flow Control M5 Elbow - 6mm OD Push-in (Metric)	**VLVF-008**	**1 or 2**
Buna-N Seal Repair Kit	**SLKT-160**	**1**
Viton® Seal Repair Kit	**SLKT-160V**	**1**

MOUNTING ACCESSORIES

Adjustment Stop Kit (1 Shielded Plate + 1 Stop)	**KP-DCT16-BR**	**1**

*Sensor and cable sold separately.



DIRECTCONNECT™

ANGULAR GRIPPER DCT-20M
180° SERIES

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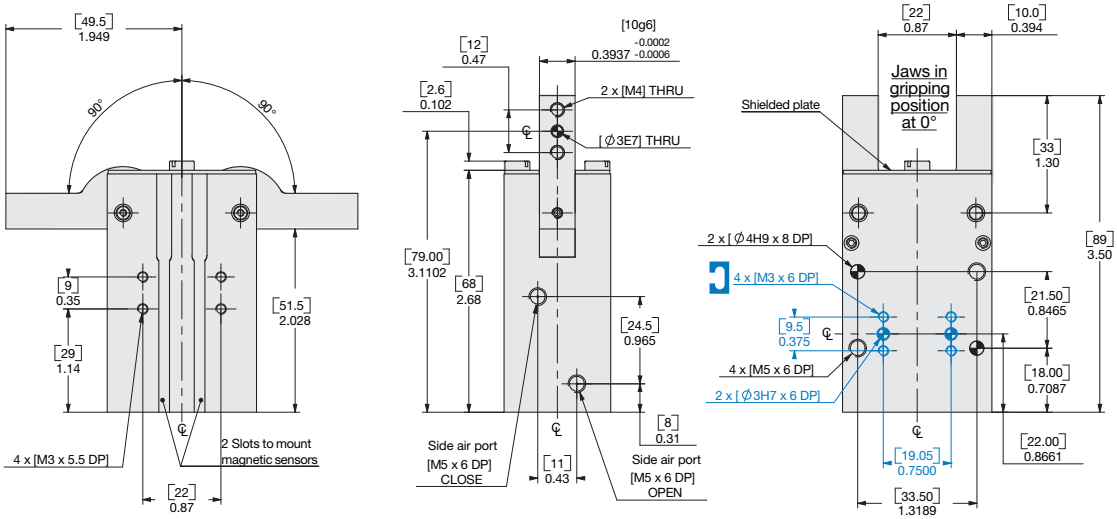
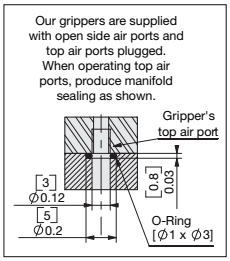
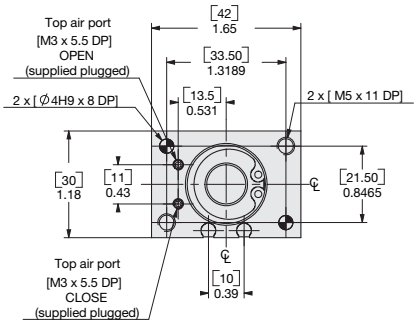






Specifications

	DCT-20M	
Total Rated Grip Force, **F** @ 100 psi [7 bar]		
L = 1.25 in. [32mm] @ 0°	25 lbs.	112 N
Stroke	90° of stroke for each finger	
Weight	0.62 lbs.	0.28 Kg
Pressure Range	40-100 psi	3-7 Bar
Cylinder Bore Ø	0.787 in.	20 mm
Displacement	0.483 in^3.	7.92 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.16 sec.	0.16 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.002 in.	±0.05 mm
Valve required to actuate	4-way, 2-position	

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

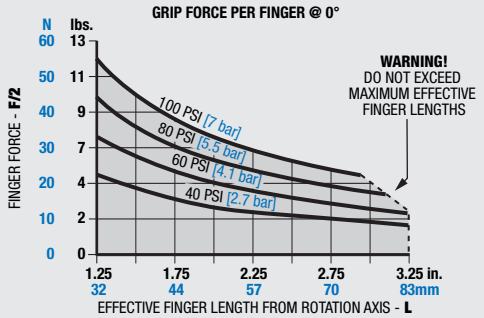
Metric Threads Course Pitch

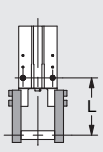
Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

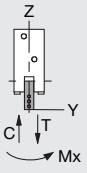
NOTE: Jaws have to be designed for a 0° gripping position (parallel ja ws). Jaws will close 1.5° past parallel. To limit shocks at the end of an opening or closing stroke, it is highly recommended to design ja ws with minimal inertia (as light and short as possible).

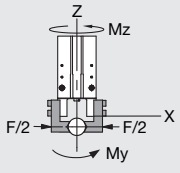
Flow Controls make it possible to reduce the rota tion speed and are highly recommended.

Loading Information









Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	34 lbs.	150 N	7 lbs.	30 N
Maximum Compressive **C**	34 lbs.	150 N	7 lbs.	30 N
Maximum Moment M_x	53 in.-lbs.	6 Nm	13 in.-lbs.	1.5 Nm
Maximum Moment M_y	53 in.-lbs.	6 Nm	13 in.-lbs.	1.5 Nm
Maximum Moment M_z	53 in.-lbs.	6 Nm	13 in.-lbs.	1.5 Nm

†Capacities are per set of ja ws and are not simultaneous

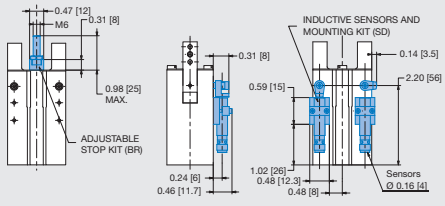
How to Order: (Order Accessories separately from Basic Model)

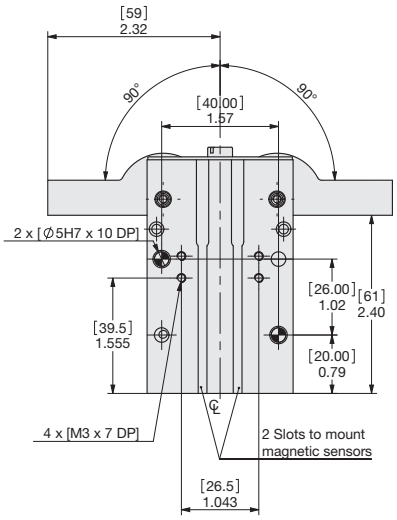
BASIC MODEL **DCT - 20M - V** (SIZE, VITON® SEALS)

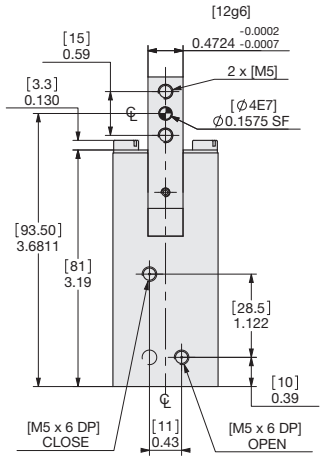
NOTE: DCT-20 can be used as an exact replacement for CT-20

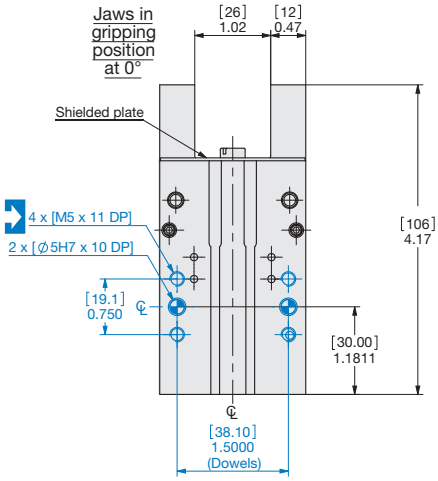
SENSOR ACCESSORIES*		
M8 PNP Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSP-017**	**1 or 2**
M8 NPN Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSN-017**	**1 or 2**
Inductive Sensor Mounting Kit (mounts 2 sensors)	**SDCT16-20**	**1**
4mm PNP Inductive Sensor with Quick Disconnect*	**OISP-014**	**1 or 2**
4mm NPN Inductive Sensor with Quick Disconnect*	**OISN-014**	**1 or 2**
M8 Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
M8 Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**
PNEUMATIC ACCESSORIES		
Adj. Flow Control M5 Elbow - 6mm OD Push-in (Metric)	**VLVF-008**	**1 or 2**
Buna-N Seal Repair Kit	**SLKT-161**	**1**
Viton® Seal Repair Kit	**SLKT-161V**	**1**
MOUNTING ACCESSORIES		
Adjustment Stop Kit (1 Shielded Pla te + 1 Stop)	**KP-DCT20-BR**	**1**

*Sensor and cable sold separa tely.



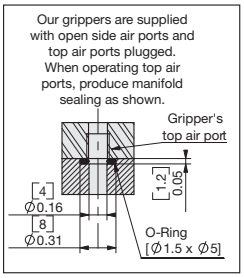


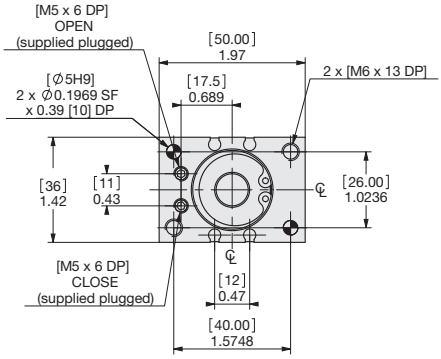




Specifications

	DCT-25M	
Total Rated Grip Force, **F** @ 100 psi [7 bar]		
L = 1.75 in. [44mm] @ 0°	35 lbs.	157 N
Stroke	90° of stroke for each finger	
Weight	1.08 lbs.	0.49 Kg
Pressure Range	40-100 psi	3-7 Bar
Cylinder Bore Ø	0.984 in.	25 mm
Displacement	0.909 in³.	14.9 cm³
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.21 sec.	0.21 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.002 in.	±0.05 mm.
Valve required to actuate	4-way, 2-position	





NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

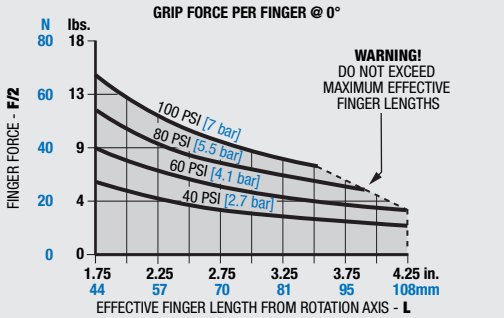
Metric Threads Course Pitch

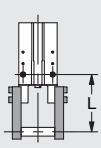
Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

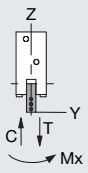
NOTE: Jaws have to be designed for a 0° gripping position (parallel ja ws). Jaws will close 1.5° past parallel. To limit shocks at the end of an opening or closing stroke, it is highly recommended to design ja ws with minimal inertia (as light and short as possible).

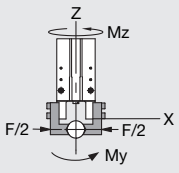
Flow Controls make it possible to reduce the rota tion speed and are highly recommended.

Loading Information









Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	46 lbs.	205 N	9 lbs.	41 N
Maximum Compressive **C**	46 lbs.	205 N	9 lbs.	41 N
Maximum Moment **Mx**	89 in.-lbs.	10 Nm	22 in.-lbs.	2.5 Nm
Maximum Moment **My**	89 in.-lbs.	10 Nm	22 in.-lbs.	2.5 Nm
Maximum Moment **Mz**	89 in.-lbs.	10 Nm	22 in.-lbs.	2.5 Nm

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL

DCT - 25M - V

SIZE — VITON® SEALS

SENSOR ACCESSORIES*

PNP Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSN-017**	**1 or 2**
Inductive Sensor Mounting Kit (mounts 2 sensors)	**SDCT25-32**	**1**
M8 PNP Inductive Sensor with Quick Disconnect*	**OISP-011**	**1 or 2**
M8 NPN Inductive Sensor with Quick Disconnect*	**OISN-011**	**1 or 2**
M8 Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
M8 Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**

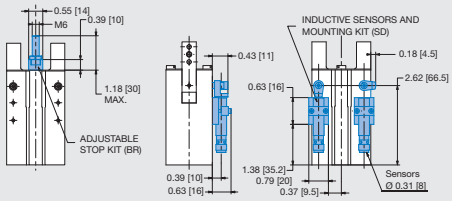
PNEUMATIC ACCESSORIES

M5 Adjustable Flow Control	**VLVF-008**	**1 or 2**
Buna-N Seal Repair Kit	**SLKT-162**	**1**
Viton® Seal Repair Kit	**SLKT-162V**	**1**

MOUNTING ACCESSORIES

Adjustment Stop Kit (1 Shielded Plate + 1 Stop)	**KP-DCT25-BR**	**1**

*Sensor and cable sold separately.



DIRECTCONNECT™

ANGULAR GRIPPER CT-32M
180° SERIES

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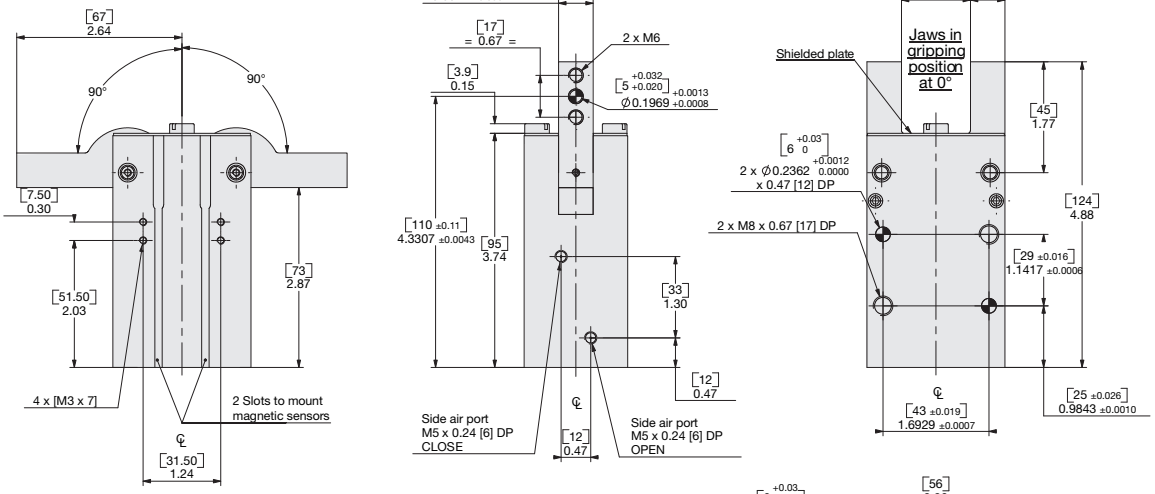
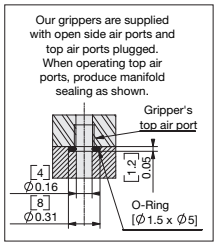
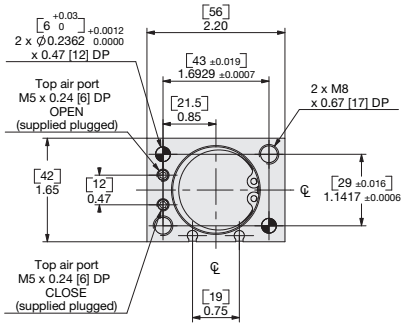


Specifications

	CT-32M	
Total Rated Grip Force, **F** @ 100 psi [7 bar]		
L = 1.75 in. [44mm] @ 0°	61 lbs.	272 N
Stroke	90° of stroke for each finger	
Weight	1.59 lbs.	0.72 Kg
Pressure Range	40-100 psi	3-7 Bar
Cylinder Bore Ø	1.260 in.	32 mm
Displacement	1.745 in^3.	28.6 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.29 sec.	0.29 sec.
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.002 in.	±0.05 mm
Valve required to actuate	4-way, 2-position	





UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

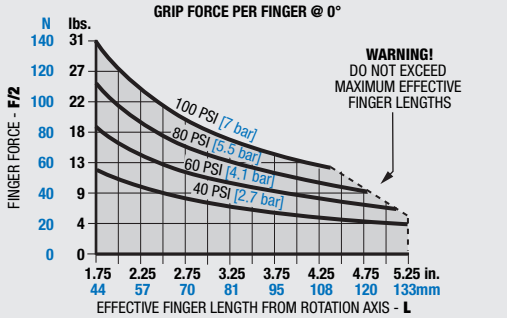
Metric Threads Course Pitch

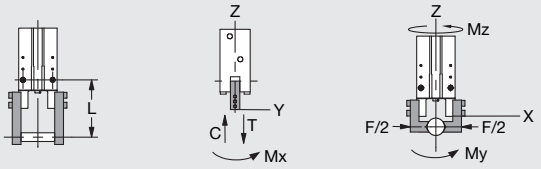
Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

NOTE: Jaws have to be designed for a 0° gripping position (parallel ja ws). Jaws will close 1.5° past parallel. To limit shocks at the end of an opening or closing stroke, it is highly recommended to design ja ws with minimal inertia (as light and short as possible).

Flow Controls make it possible to reduce the rota tion speed and are highly recommended.

Loading Information





Loading Capacity†

	Static		Dynamic	
	Imperial	Metric	Imperial	Metric
Maximum Tensile **T**	65 lbs.	288 N	13 lbs.	57.6 N
Maximum Compressive **C**	65 lbs.	288 N	13 lbs.	57.6 N
Maximum Moment **Mx**	142 in.-lbs.	16 Nm	35 in.-lbs.	4 Nm
Maximum Moment **My**	142 in.-lbs.	16 Nm	35 in.-lbs.	4 Nm
Maximum Moment **Mz**	142 in.-lbs.	16 Nm	35 in.-lbs.	4 Nm

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL

CT - 32M - V

SIZE VITON® SEALS

SENSOR ACCESSORIES*

PNP Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSN-017**	**1 or 2**
Inductive Sensor Mounting Kit (mounts 2 sensors)	**SDCT25-32**	**1**
M8 PNP Inductive Sensor with Quick Disconnect*	**OISP-011**	**1 or 2**
M8 NPN Inductive Sensor with Quick Disconnect*	**OISN-011**	**1 or 2**
M8 Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
M8 Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**

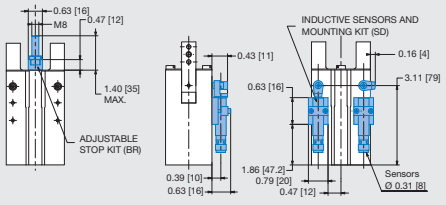
PNEUMATIC ACCESSORIES

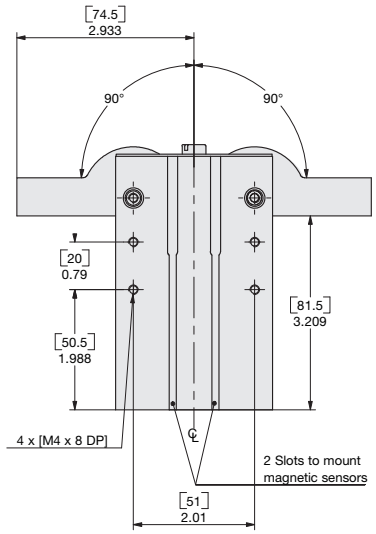
Adj. Flow Control M5 Elbow - 6mm OD Push-in (Metric)	**VLVF-008**	**1 or 2**
Buna-N Seal Repair Kit	**SLKT-163**	**1**
Viton® Seal Repair Kit	**SLKT-163V**	**1**

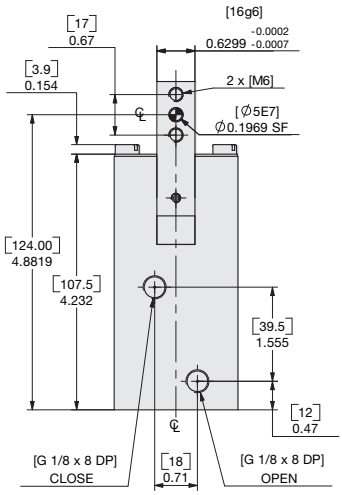
MOUNTING ACCESSORIES

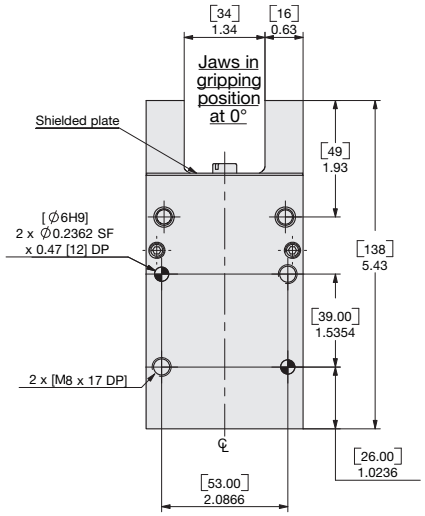
Adjustment Stop Kit (1 Shielded Pla te + 1 Stop)	**KP-DCT32-BR**	**1**

*Sensor and cable sold separa tely.



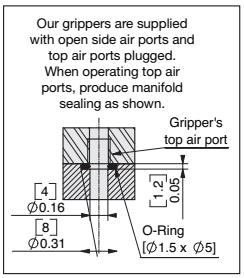


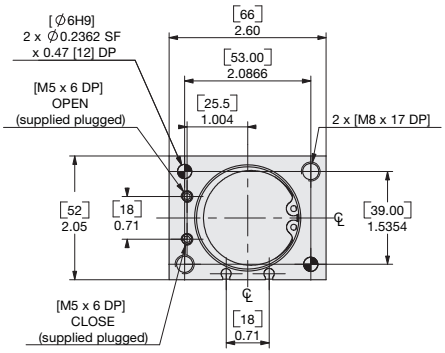




Specifications

	CT-40M	
Total Rated Grip Force, **F** @ 100 psi [7 bar]		
L = 2 in. [51mm] @ 0°	100 lbs.	446 N
Stroke	90° of stroke for each finger	
Weight	2.60 lbs.	1.18 Kg
Pressure Range	40-100 psi	3-7 Bar
Cylinder Bore Ø	1.575 in.	40 mm
Displacement	3.173 in^3.	52 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.41 sec.	0.41 sec.
Accuracy	±0.0036 in.	±0.09 mm
Repeatability	±0.002 in.	±0.05 mm.
Valve required to actuate	4-way, 2-position	





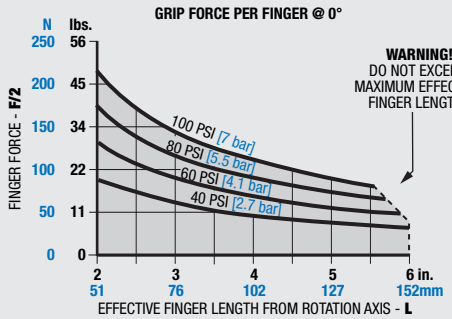
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

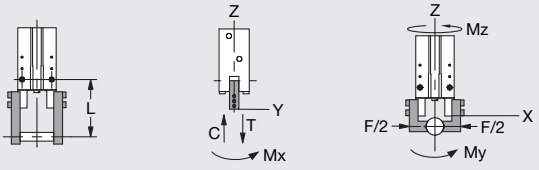
Dimensions are symmetrical about centerline	Third Angle Projection	Metric Threads Course Pitch	Imperial in.	Metric [mm]
			0.00 = ± .01	[0.] = [± .25]
			0.000 = ± .005	[0.0] = [± .13]
			0.0000 = ± .0005	[0.00] = [± .013]

NOTE: Jaws have to be designed for a 0° gripping position (parallel ja ws). Jaws will close 1.5° past parallel. To limit shocks at the end of an opening or closing stroke, it is highly recommended to design ja ws with minimal inertia (as light and short as possible).

Flow Controls make it possible to reduce the rota tion speed and are highly recommended.

Loading Information





Loading Capacity†

	Static		Dynamic	
	Imperial	Metric	Imperial	Metric
Maximum Tensile **T**	94 lbs.	420 N	19 lbs.	84 N
Maximum Compressive **C**	94 lbs.	420 N	19 lbs.	84 N
Maximum Moment M_x	195 in.-lbs.	22 Nm	49 in.-lbs.	5.5 Nm
Maximum Moment M_y	195 in.-lbs.	22 Nm	49 in.-lbs.	5.5 Nm
Maximum Moment M_z	195 in.-lbs.	22 Nm	49 in.-lbs.	5.5 Nm

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL

CT - 40M - V

SIZE — VITON® SEALS

SENSOR ACCESSORIES*

PNP Magneto Resistive Sensor Short Barrel M8 w/Qk Disc*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor Short Barrel M8 w/Qk Disc*	**OHSN-017**	**1 or 2**
Inductive Sensor Mounting Kit (mounts 2 sensors)	**SCT40-63**	**1**
M12 PNP Inductive Sensor with M12 Quick Disconnect*	**OISP-017**	**1 or 2**
M12 NPN Inductive Sensor with M12 Quick Disconnect*	**OISN-017**	**1 or 2**
M8 Quick Disconnect 2 Meter Cable Length *	**CABL-010**	**1 or 2**
M8 Quick Disconnect 5 Meter Cable Length *	**CABL-013**	**1 or 2**
M12 Quick Disconnect 2 Meter Cable Length *	**CABL-014**	**1 or 2**
M12 Quick Disconnect 5 Meter Cable Length *	**CABL-018**	**1 or 2**

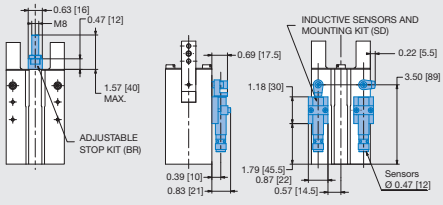
PNEUMATIC ACCESSORIES

Adj. Flow Control G1/8 Elbow - 6mm OD Push-in (Metric)	**VLVF-005**	**1 or 2**
Buna-N Seal Repair Kit	**SLKT-164**	**1**
Viton® Seal Repair Kit	**SLKT-164V**	**1**

MOUNTING ACCESSORIES

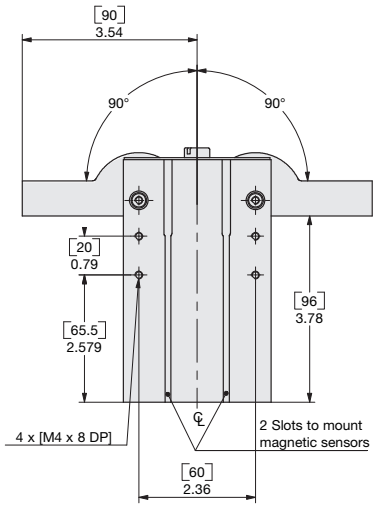
Adjustment Stop Kit (1 Shielded Pla te + 1 Stop)	**KP-CT40-BR**	**1**

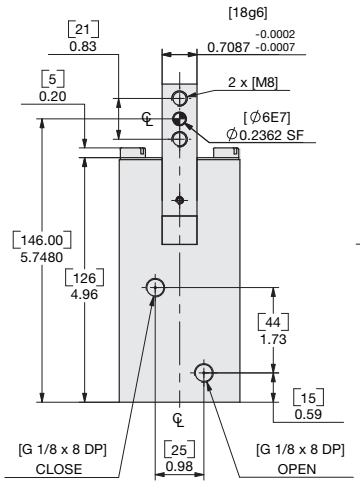
*Sensor and cable sold separa tely.

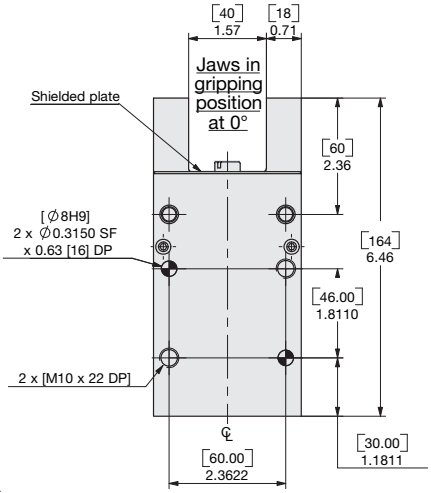


ANGULAR GRIPPER CT-50M
180° SERIES

Robohand



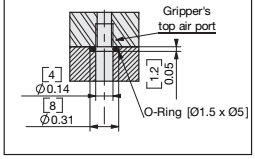


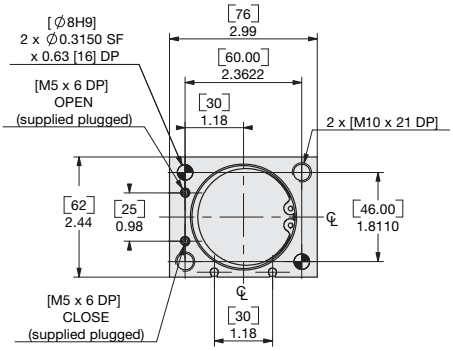


Specifications

	CT-50M	
Total Rated Grip Force, **F** @ 100 psi [7 bar]		
L = 2.25 in. [64mm] @ 0°	146 lbs.	651 N
Stroke	90° of stroke for each finger	
Weight	4.01 lbs.	1.82 Kg
Pressure Range	40-100 psi	3-7 Bar
Cylinder Bore Ø	1.968 in.	50 mm
Displacement	5.614 in^3.	92 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.46 sec.	0.46 sec.
Accuracy	±0.0036 in.	±0.09 mm
Repeatability	±0.002 in.	±0.05 mm.
Valve required to actuate	4-way, 2-position	

Our grippers are supplied with open side air ports and top air ports plugged. When operating top air ports, produce manifold sealing as shown.





UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

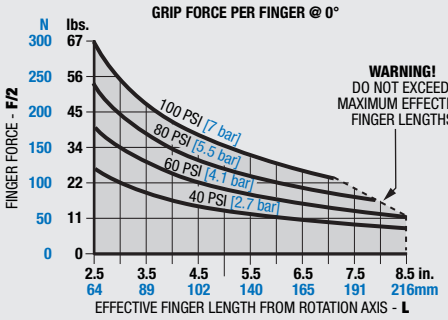
Metric Threads Course Pitch

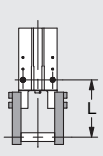
Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

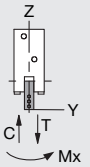
NOTE: Jaws have to be designed for a 0° gripping position (parallel ja ws). Jaws will close 1.5° past parallel. To limit shocks at the end of an opening or closing stroke, it is highly recommended to design ja ws with minimal inertia (as light and short as possible).

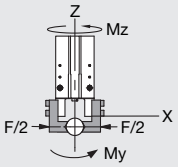
Flow Controls make it possible to reduce the rota tion speed and are highly recommended.

Loading Information









Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	110 lbs.	490 N	22 lbs.	98 N
Maximum Compressive **C**	110 lbs.	490 N	22 lbs.	98 N
Maximum Moment M_x	266 in.-lbs.	30 Nm	66 in.-lbs.	7.5 Nm
Maximum Moment M_y	266 in.-lbs.	30 Nm	66 in.-lbs.	7.5 Nm
Maximum Moment M_z	266 in.-lbs.	30 Nm	66 in.-lbs.	7.5 Nm

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL

CT - 50M - V

SIZE — VITON® SEALS

SENSOR ACCESSORIES*

M8 PNP Magneto Resistive Sensor Short Barrel M8 w/Qk Disc*	**OHSP-017**	**1 or 2**
M8 NPN Magneto Resistive Sensor Short Barrel M8 w/Qk Disc*	**OHSN-017**	**1 or 2**
Inductive Sensor Mounting Kit (mounts 2 sensors)	**SDCT40-63**	**1**
M12 PNP Inductive Sensor with M12 Quick Disconnect*	**OISP-017**	**1 or 2**
M12 NPN Inductive Sensor with M12 Quick Disconnect*	**OISN-017**	**1 or 2**
M8 Quick Disconnect 2 Meter Cable Length *	**CABL-010**	**1 or 2**
M8 Quick Disconnect 5 Meter Cable Length *	**CABL-013**	**1 or 2**
M12 Quick Disconnect 2 Meter Cable Length *	**CABL-014**	**1 or 2**
M12 Quick Disconnect 5 Meter Cable Length *	**CABL-018**	**1 or 2**

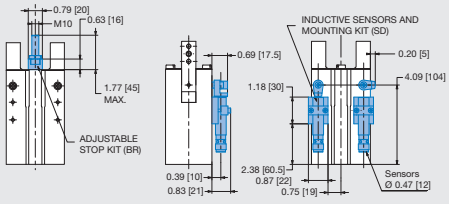
PNEUMATIC ACCESSORIES

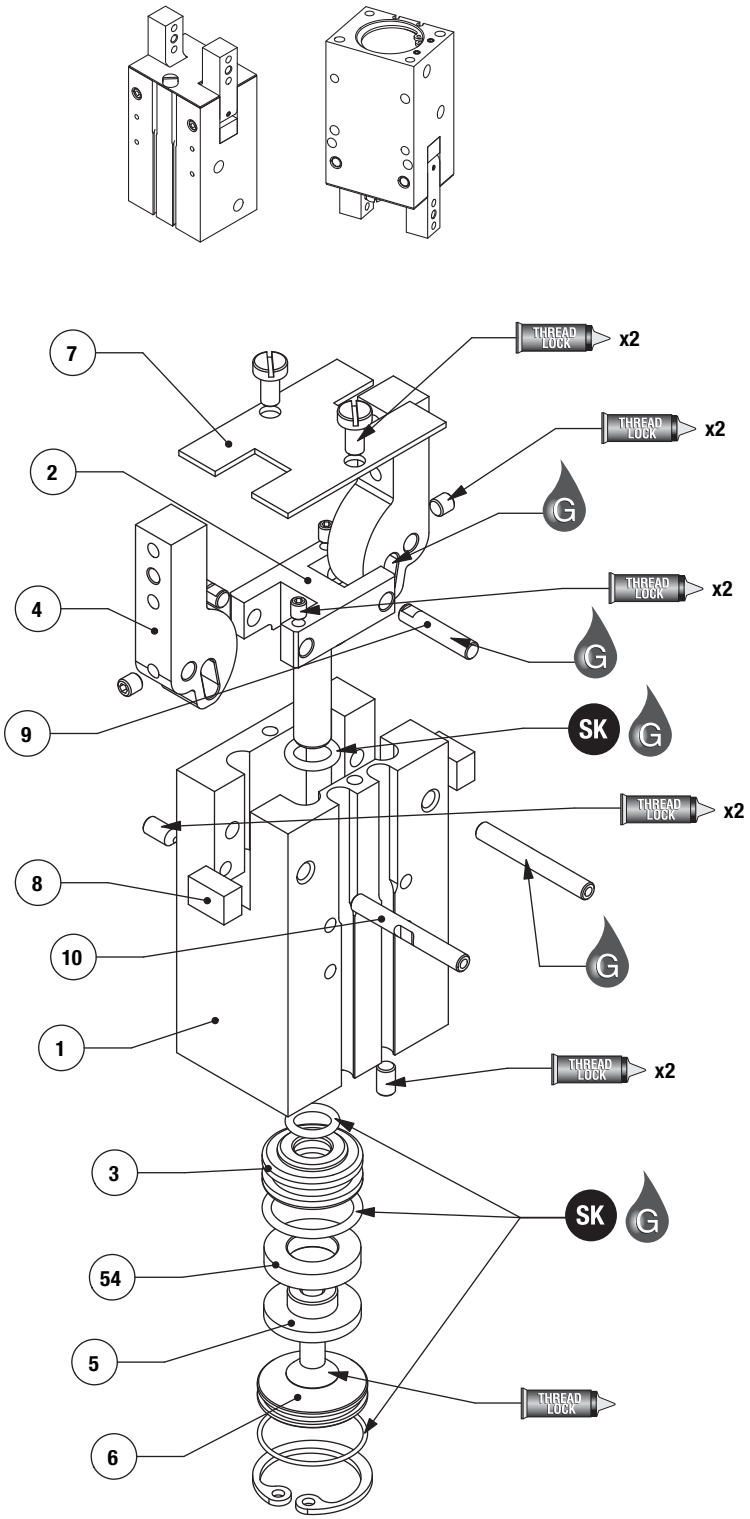
Adj. Flow Control G1/8 Elbow - 6mm OD Push-in (Metric)	**VLVF-005**	**1 or 2**
Buna-N Seal Repair Kit	**SLKT-165**	**1**
Viton® Seal Repair Kit	**SLKT-165V**	**1**

MOUNTING ACCESSORIES

Adjustment Stop Kit (1 Shielded Pla te + 1 Stop)	**KP-CT50-BR**	**1**

*Sensor and cable sold separa tely.





Item	Qty	Name
01	1	Body
02	1	Driver
03	1	Piston
04	2	Jaw
05	1	Washer
06	1	Cap
07	1	Shielded Plate
08	2	Wiper Cover
09	2	Drive Pin
10	2	Pivot Pin
54	1	Magnet

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

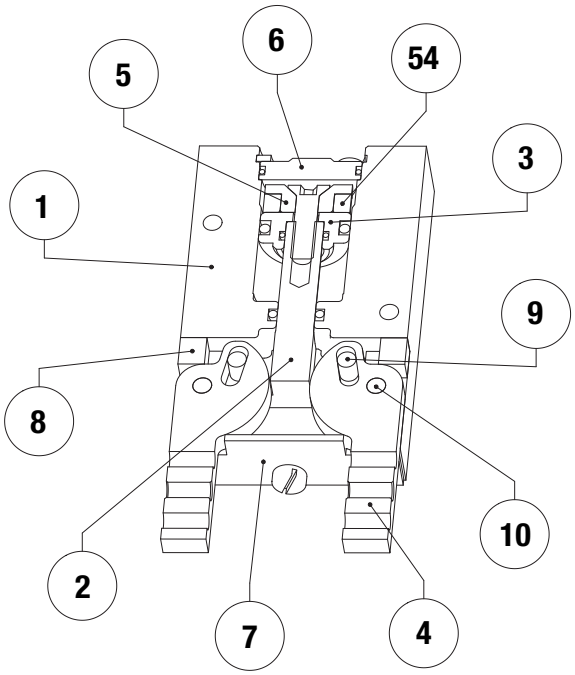
Assembly Procedure

1) Lubricate and install the seals into cap (x1), piston (x2) and body (x1)
2) If top air ports are used, clear them and plug the side air ports on the body (#1)
3) Lubricate the sloping rack of jaws (#4)
4) Install both drive pins (#9) into driver (#2) through sloping racks of jaws. Check that the pin flat surface is correctly aligned before continuing with their installation.
5) Lock drive pins in the driver with screws, tightening down on to the flat surface of the pins.
6) Position driver and jaws assembly into body.
7) Install both pivot pins (#10) into body, through the bore of jaws. Check that the pin flat surface is correctly aligned before continuing with their installation.
8) Pivot pin locking:
   - DCT-12 (not shown): lock pivot pins into body with screws, tightening down on to the flat surface of the pins (pins are fixed into body and rotating into jaws)
   - DCT-16 to CT-50: lock pivot pins into jaws with screws, tightening down on to the flat surface of the pins (pins are fixed into jaws and rotating into body)
9) Magnet mounting:
   - DCT-12 to DCT-20: install the magnet (#54) on the washer (#5)
   - DCT-25 to CT-50 (not shown): install magnet (#54) onto piston (#3) and lock it by means of its retaining ring.
10) Piston mounting:
   - DCT-12 to DCT-20: insert the piston and the washer with magnet into body. Fix the assembly at the end of the driver with screw.
   - DCT-25 to CT-50 (not shown): insert the piston with magnet into body. Fix the assembly at the end of the drivers with screw.
11) Check unit operation unladen.
12) Install the cap (#6) into body and lock it by means of its retaining ring.
13) Place both wiper covers (#8) into body and lock them with their screws.
14) Fix the shielded plate (#7) onto body with both screws.

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

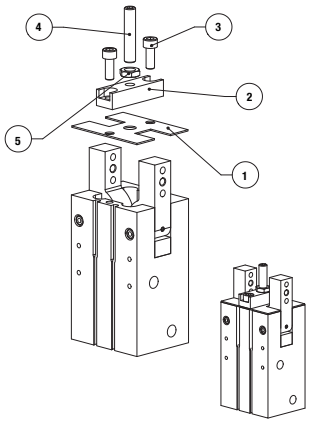
DCT/CT Series Assembled View



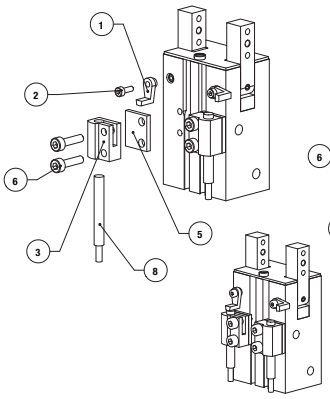
Item	Qty	Name
01	1	Body
02	1	Driver
03	1	Piston
04	2	Jaw
05	1	Washer
06	1	Cap
07	1	Shielded Plate
08	2	Wiper Cover
09	2	Drive Pin
10	2	Pivot Pin
54	1	Magnet

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

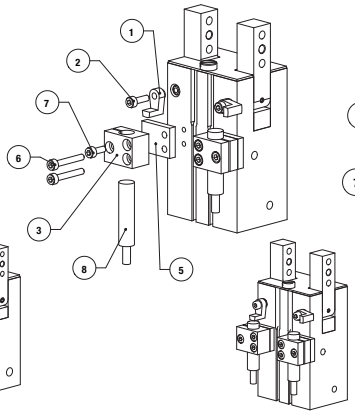
Accessory Installation & Adjustment Instructions



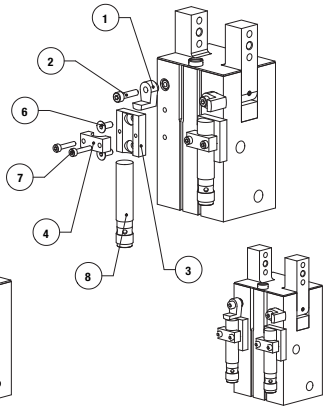
DCT16M, 20M



DCT25M, 32M



CT40M, 50M



Installation - Adjustment Stop

1) Unscrew both screws for mounting of the shielded plate and remove it.
2) Fix the new shielded plate (#1) and the stop (#2) onto body with both screws (#3)
3) Install the locknut system (#4) and (#5) on the stop.
4) Tighten screw for maximum target jaw opening and lock with locknut.

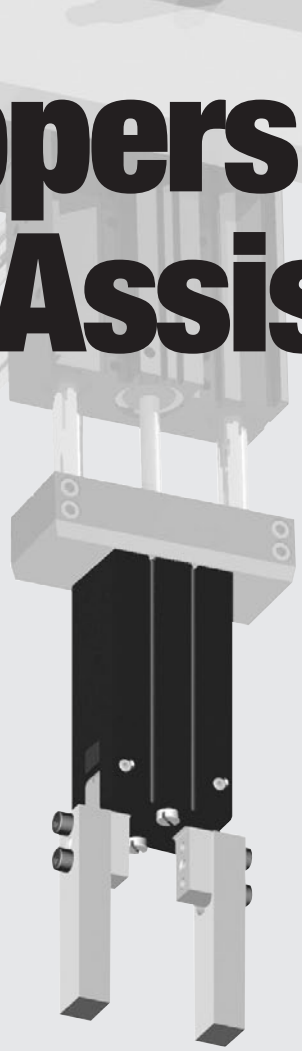
Installation - Inductive Sensor Holders

1) Fix the flags (#1) at the end of pivot pins with their screws (#2)
2) Holder mounting:
   - DCT-16M to DCT-32M: fix holder (#3) and spacer (#5) onto body with both screws (#6)
   - DCT-40M to DCT-50M: fix holder (#3) onto body with both screws (#6)
3) Sensor mounting:
   - DCT-16M to DCT-20M: unscrew lightly both screws for mounting (#6) of holder and insert sensor (#8, not included) into it. Position sensor so that it senses up on flag. Lock the sensor by tightening both screws.
   - DCT-25M to DCT-32M: unscrew lightly screw (#7) on holder and insert sensor (#8, not included) into it. Position sensor so that it senses up the flag. Lock the sensor by tightening screw.
   - CT-40M to CT-50M: insert sensor (#8, not included) in stop into holder. Lock the sensor by tightening the collar holder with both screws (not shown).
4) Adjust flag position by unscrewing their screws for desired sensing positions.

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

DESIGN NOTES

Angular Grippers - 180° Spring Assist Series

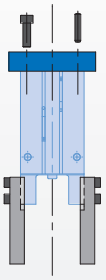


- **180° angular gripper:** The full jaw opening (180°) means that the part can be direct fed, avoiding any release movement by the robot or by the actuator.
- **Multiple mounting locations:** DIRECTCONNECT™ mounting on back of body (sizes 12-25). Standard mounting on top.
- **Fail safe operation:** The force supplied from the internal spring can be used to maintain gripping force if the gripper looses air pressure.
- **Compact gripper:** This gripper is designed for use in confined spaces.
- **Multipurpose gripper:** Several accessories (adjustable stop, magneto resistive or inductive sensors) allow this gripper to be used in a number of applications.
- **Harsh environments:** Shielded design repels chips and other particulate from internal drive mechanism.

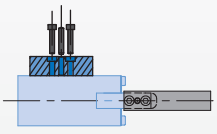
Mounting Information:

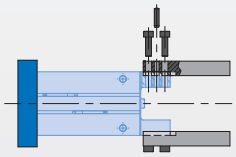
Grippers can be mounted & operated in any orientation

Gripper is located from the top with 2 dowel pins and assembled with 2 screws.



DIRECTCONNECT mounting pattern: Gripper is located with 2 dowel pins and assembled with 4 screws. Alternative pattern: Gripper is located with 2 dowel pins and assembled with 2 screws.





Fingers are centered over the jaws, located with 1 dowel pin and assembled with 2 screws.

The gripper is protected from falling debris when it is mounted and operated upside down.

Gripper can be operated utilizing top manifold air ports.

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**60-100 psi**	**4-7 bar**
Cylinder Type	**Double Acting Spring Assist or Single Acting Spring Return**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (Standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (Optional)	**-20°~300° F**	**-30°~150° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

*Addition of lubrication will greatly increase service life
†See Maintenance Section

DIRECTCONNECT™

Product Features

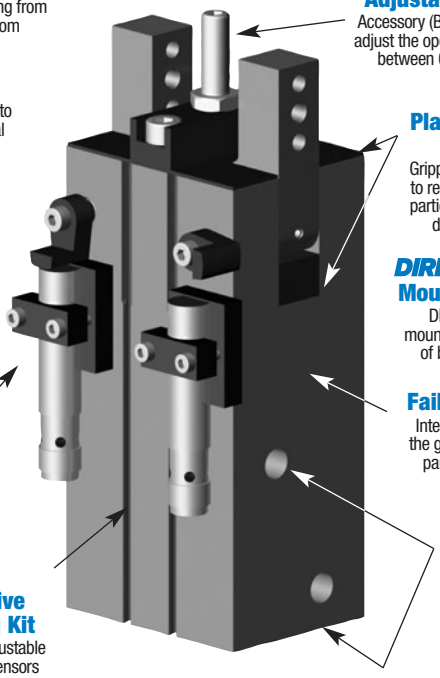
Gripper Attachment
Gripper mounting from side or bottom

Viton Seals
Viton seals for high temperatures (-20°F to +300°F) are optional

Quality Components
Made from aluminum alloy anodized with Teflon™ impregnation. The gripper's main components are made of heat treated steel.

Inductive Sensor Mounting Kit
Accessory (SD) in order to control jaw position: comes with 2 holders for tubular sensors and 2 adjustable flags (except size -12)

Magneto Resistive Sensor Mounting Kit
The gripper comes with adjustable slots for the 2 magnetic sensors (to control jaw position)



Adjustable Stop
Accessory (BR) in order to adjust the opening of jaws, between 0° to 180°

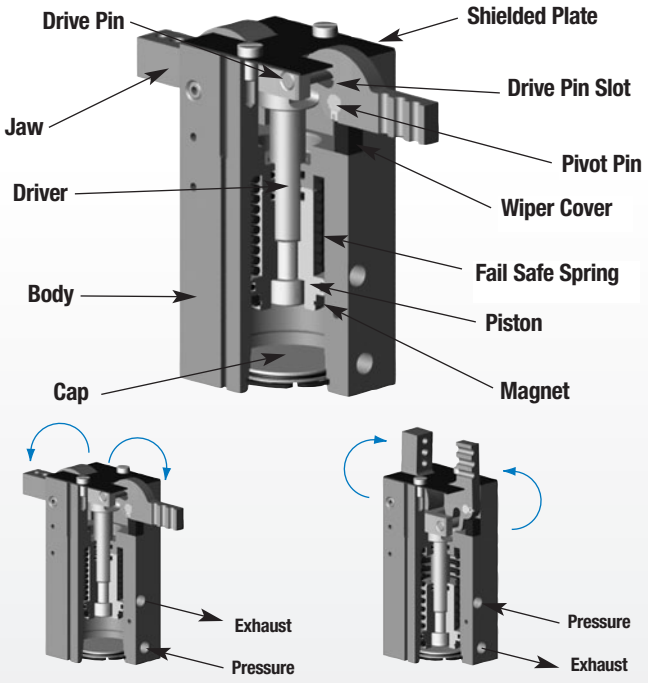
Shielded Plate and Wiper Covers
Gripper body is shielded to repel chips and other particulate from internal drive mechanism

DIRECTCONNECT Mounting Patterns
DIRECTCONNECT™ mounting surface on back of body (sizes 12-25)

Fail Safe Spring
Internal spring allows the gripper to hold onto part with loss of air pressure

Multiple Air Ports
Side or top air ports (top ports require O-ring)

Operating Principle



- A double acting piston, with a ring magnet for magneto resistive sensing, is connected to a fork driver on which 2 drive pins are fixed.
- Jaw rotation is synchronized with the drive pin-jaw assembly.
- Sliding in these slots, drive pins convert vertical motion of the piston into rotating opposite synchronous motion of both jaws.
- Each jaw has a useful rotation stroke of 90°, between the 90° open position and the 0° gripping position, plus a gripping over-stroke of approximately 1.5° before reaching the fully gripped position. Jaws have to be designed for a 0° gripping position (parallel jaws)
- The fail safe spring allow the gripper to retain the component should the air supply fail or for the gripper to be used in single acting mode.

Style -DCT-RE Angular Gripper

Size -12M

Style:	**DCT-12M-RE**
Stroke:	90° each finger
Grip Force:	9 lbs 40 N
Weight:	0.26 lbs 0.12 Kg

See Page **2.50**

Style -DCT-RE Angular Gripper

Size -16M

Style:	**DCT-16M-RE**
Stroke:	90° each finger
Grip Force:	19 lbs 87 N
Weight:	0.44 lbs 0.20 Kg

See Page **2.51**

Style -DCT-RE Angular Gripper

Size -20M

Style:	**DCT-20M-RE**
Stroke:	90° each finger
Grip Force:	32 lbs 141 N
Weight:	0.73 lbs 0.33 Kg

See Page **2.52**

Style -DCT-RE Angular Gripper

Size -25M

Style:	**DCT-25M-RE**
Stroke:	90° each finger
Grip Force:	45 lbs 199 Nm
Weight:	1.26 lbs 0.57 Kg

See Page **2.53**

Style -CT-RE Angular Gripper

Size -32M

Style:	**CT-32M-RE**
Stroke:	90° each finger
Grip Force:	79 lbs 353 N
Weight:	1.83 lbs 0.83 Kg

See Page **2.54**

Style -CT-RE Angular Gripper

Size -40M

Style:	**CT-40M-RE**
Stroke:	90° each finger
Grip Force:	133 lbs 592 N
Weight:	3.06 lbs 1.39 Kg

See Page **2.55**

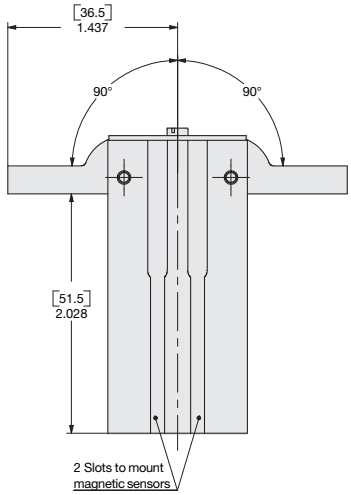
Style -CT-RE Angular Gripper

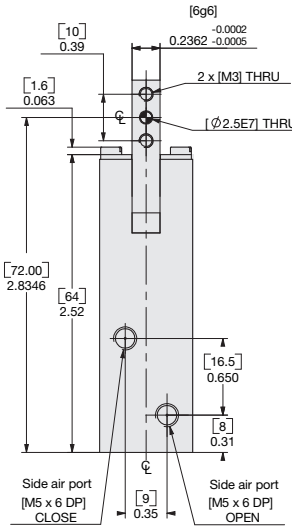
Size -50M

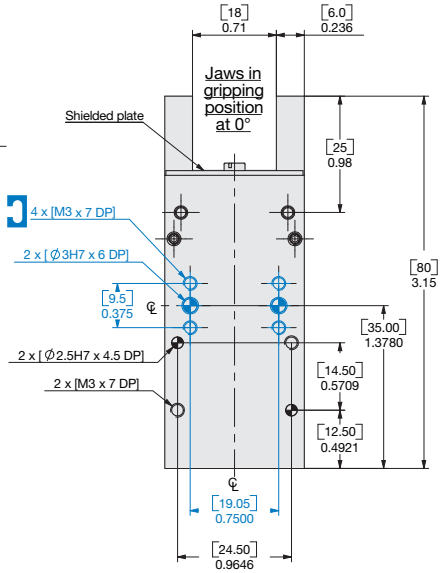
Style:	**CT-50M-RE**
Stroke:	90° each finger
Grip Force:	201 in-lbs 893 N
Weight:	4.87 lbs 2.21 Kg

See Page **2.56**

ANGULAR GRIPPER DCT-12M-RE
180° SERIES



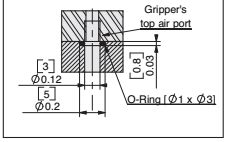


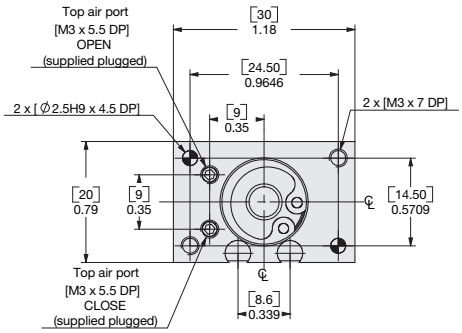


Specifications

	DCT-12M-RE	
Total Rated Grip Force, **F** @ 100 psi [7 bar]		
L = 1 in. [25mm] @ 0°	9 lbs.	40 N
Stroke	90° of stroke for each finger	
Weight	0.26 lbs.	0.12 Kg
Pressure Range	60-100 psi	4-7 Bar
Cylinder Bore Ø	0.472 in.	12 mm
Displacement	0.117 in^3.	1.92 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation (open/close)	0.08 / 0.05 sec.	
Accuracy	±0.0028 in.	±0.07 mm
Repeatability	±0.002 in.	±0.05 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Our grippers are supplied with open side air ports and top air ports plugged. When operating top air ports, produce manifold sealing as shown.





NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

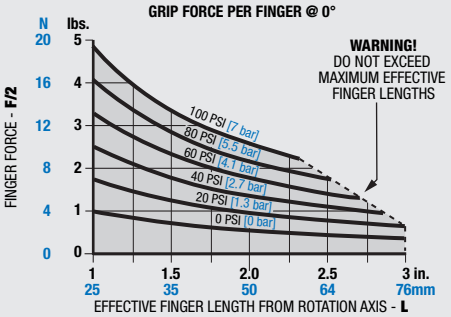
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

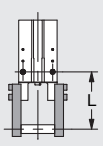
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

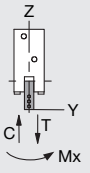
NOTE: Jaws have to be designed for a 0° gripping position (parallel ja ws). Jaws will close 1.5° past parallel. To limit shocks at the end of an opening or closing stroke, it is highly recommended to design ja ws with minimal inertia (as light and short as possible).

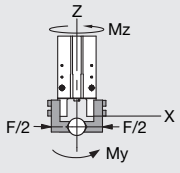
Flow Controls make it possible to reduce the rota tion speed and are highly recommended.

Loading Information









Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	11 lbs.	47 N	2 lbs.	9.4 N
Maximum Compressive **C**	11 lbs.	47 N	2 lbs.	9.4 N
Maximum Moment **Mx**	10 in.-lbs.	1.1 Nm	3 in.-lbs.	1.1 Nm
Maximum Moment **My**	10 in.-lbs.	1.1 Nm	3 in.-lbs.	1.1 Nm
Maximum Moment **Mz**	10 in.-lbs.	1.1 Nm	3 in.-lbs.	1.1 Nm

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL / VITON® SEALS

DCT - 12M - RE - V

SIZE / SPRING

NOTE: DCT-12-RE can be used as an exact replacement for CT-12-RE

SENSOR ACCESSORIES*

PNP Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSN-017**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**

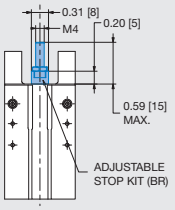
PNEUMATIC ACCESSORIES

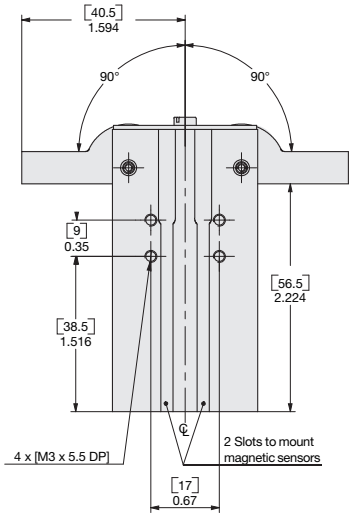
Adj. Flow Control M5 Elbow - 6mm OD Push-in (Metric)	**VLVF-008**	**1 or 2**
Buna-N Seal Repair Kit	**SLKT-159**	**1**
Viton® Seal Repair Kit	**SLKT-159V**	**1**

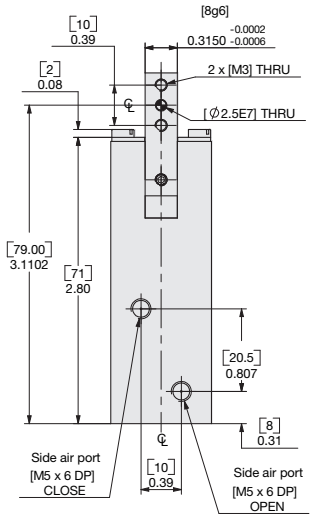
MOUNTING ACCESSORIES

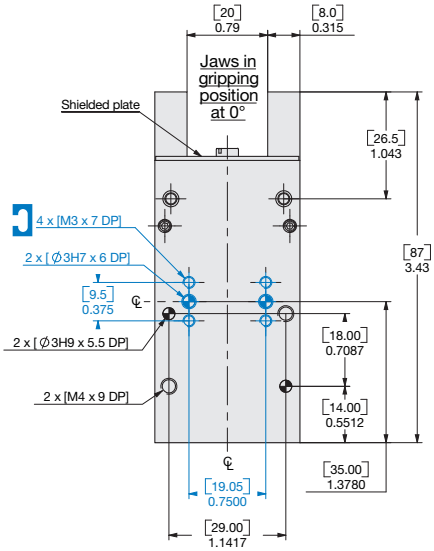
Adjustment Stop Kit (1 Shielded Plate + 1 Stop)	**KP-DCT12-BR**	**1**

*Sensor and cable sold separately.





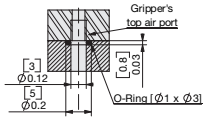


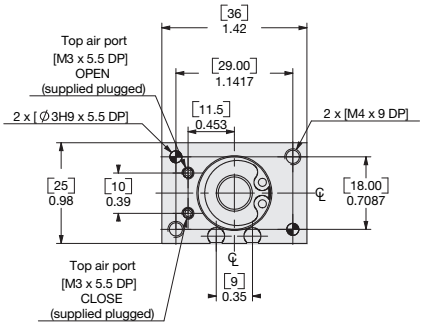


Specifications

	DCT-16M-RE	
Total Rated Grip Force, **F** @ 100 psi [7 bar]		
L = 1 in. [25mm] @ 0°	19 lbs.	87 N
Stroke	90° of stroke for each finger	
Weight	0.44 lbs.	0.20 Kg
Pressure Range	60-100 psi	4-7 Bar
Cylinder Bore Ø	0.630 in.	16 mm
Displacement	0.251 in^3.	4.12 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation (open/close)	0.15 / 0.12 sec.	
Accuracy	±0.0028 in.	±0.07 mm
Repeatability	±0.002 in.	±0.05 mm.
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Our grippers are supplied with open side air ports and top air ports plugged. When operating top air ports, produce manifold sealing as shown.





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				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
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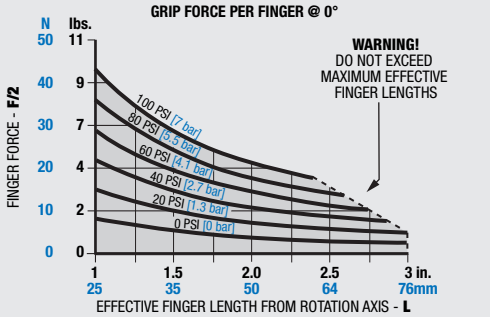
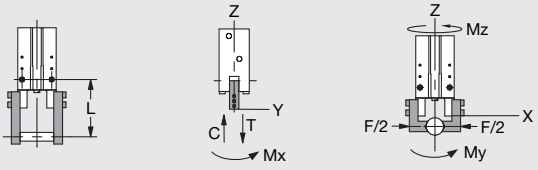
NOTE: Jaws have to be designed for a 0° gripping position (parallel ja ws). Jaws will close 1.5° past parallel. To limit shocks at the end of an opening or closing stroke, it is highly recommended to design ja ws with minimal inertia (as light and short as possible).

Flow Controls make it possible to reduce the rota tion speed and are highly recommended.

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	20 lbs.	90 N	4 lbs.	18 N
Maximum Compressive **C**	20 lbs.	90 N	4 lbs.	18 N
Maximum Moment M_x	26 in.-lbs.	2.9 Nm	6 in.-lbs.	0.7 Nm
Maximum Moment M_y	26 in.-lbs.	2.9 Nm	6 in.-lbs.	0.7 Nm
Maximum Moment M_z	26 in.-lbs.	2.9 Nm	6 in.-lbs.	0.7 Nm

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — VITON® SEALS

DCT - 16M - RE - V

SIZE — SPRING

NOTE: DCT-16-RE can be used as an exact replacement for CT-16-RE

SENSOR ACCESSORIES*

PNP Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSN-017**	**1 or 2**
Inductive Sensor Mounting Kit (mounts 2 sensors)	**SDCT16-20**	**1**
4mm PNP Inductive Sensor with Quick Disconnect*	**OISP-014**	**1 or 2**
4mm NPN Inductive Sensor with Quick Disconnect*	**OISN-014**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**

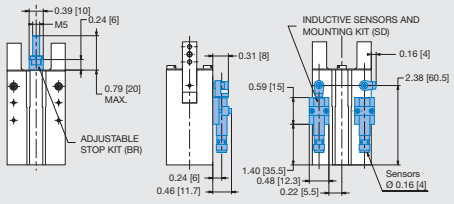
PNEUMATIC ACCESSORIES

Adj. Flow Control M5 Elbow - 6mm OD Push-in (Metric)	**VLVF-008**	**1 or 2**
Buna-N Seal Repair Kit	**SLKT-160**	**1**
Viton® Seal Repair Kit	**SLKT-160V**	**1**

MOUNTING ACCESSORIES

Adjustment Stop Kit (1 Shielded Pla te + 1 Stop)	**KP-DCT16-BR**	**1**

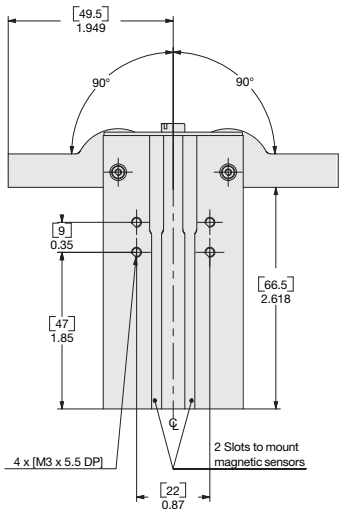
*Sensor and cable sold separa tely.

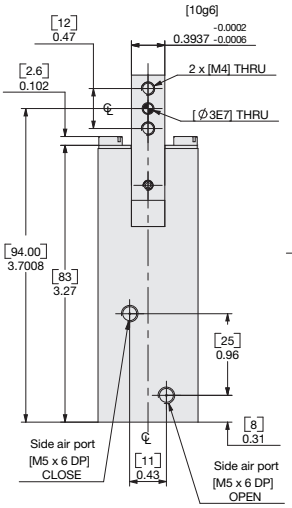


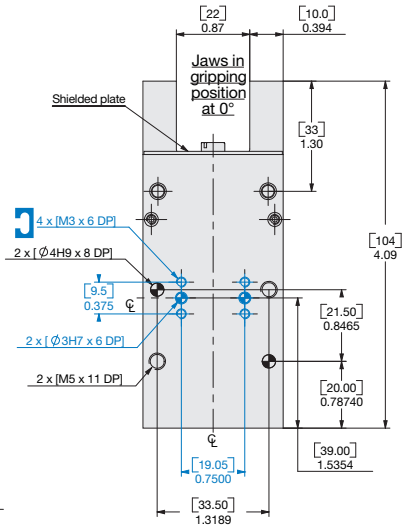
DIRECTCONNECT™

ANGULAR GRIPPER DCT-20M-RE
180° SERIES

Robohand







Specifications

	DCT-20M-RE	
Total Rated Grip Force, **F** @ 100 psi [7 bar]		
L = 1.25 in. [32mm] @ 0°	32 lbs.	141 N
Stroke	90° of stroke for each finger	
Weight	0.73 lbs.	0.33 Kg
Pressure Range	60-100 psi	4-7 Bar
Cylinder Bore Ø	0.787 in.	20 mm
Displacement	0.483 in^3.	7.92 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation (open/close)	0.20 / 0.14 sec.	
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.002 in.	±0.05 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

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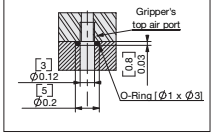

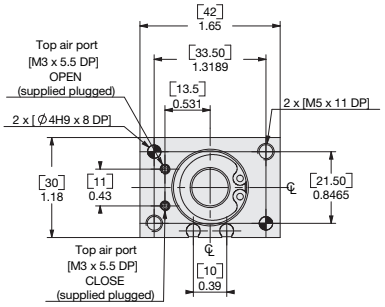

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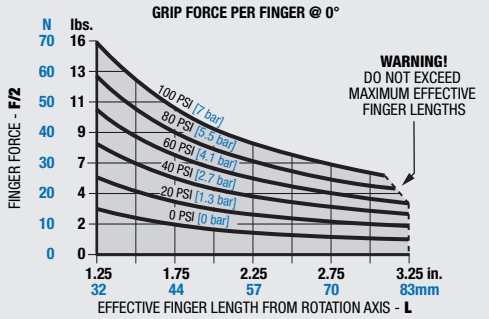
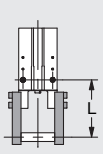
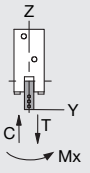
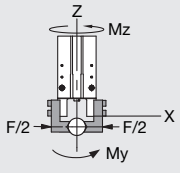
Loading Information









Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	34 lbs.	150 N	7 lbs.	30 N
Maximum Compressive **C**	34 lbs.	150 N	7 lbs.	30 N
Maximum Moment M_X	53 in.-lbs.	6 Nm	13 in.-lbs.	1.5 Nm
Maximum Moment M_Y	53 in.-lbs.	6 Nm	13 in.-lbs.	1.5 Nm
Maximum Moment M_Z	53 in.-lbs.	6 Nm	13 in.-lbs.	1.5 Nm

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | VITON® SEALS

DCT - 20M - RE - V

SIZE | SPRING

NOTE: DCT-20-RE can be used as an exact replacement for CT-20-RE

SENSOR ACCESSORIES*

PNP Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSN-017**	**1 or 2**
Inductive Sensor Mounting Kit (mounts 2 sensors)	**SDCT16-20**	**1**
4mm PNP Inductive Sensor with Quick Disconnect*	**OISP-014**	**1 or 2**
4mm NPN Inductive Sensor with Quick Disconnect*	**OISN-014**	**1 or 2**
Quick Disconnect 2 Meter Cable Length *	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length *	**CABL-013**	**1 or 2**

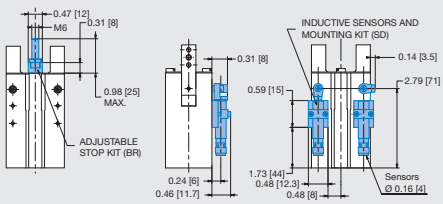
PNEUMATIC ACCESSORIES

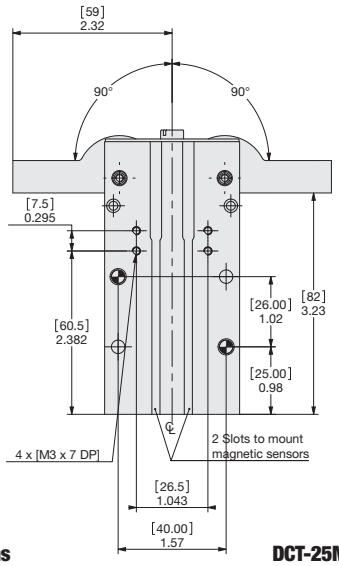
Adj. Flow Control M5 Elbow - 6mm OD Push-in (Metric)	**VLVF-008**	**1 or 2**
Buna-N Seal Repair Kit	**SLKT-161**	**1**
Viton® Seal Repair Kit	**SLKT-161V**	**1**

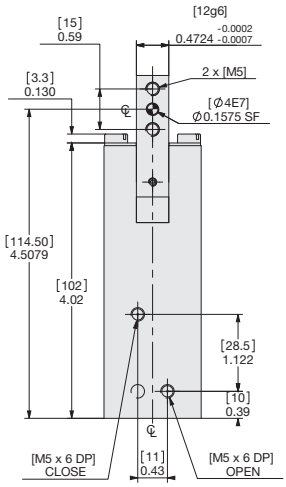
MOUNTING ACCESSORIES

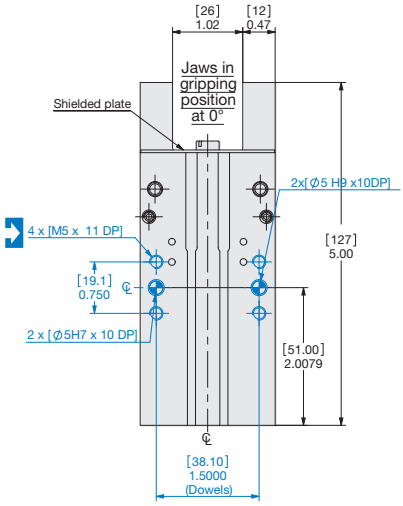
Adjustment Stop Kit (1 Shielded Pla te + 1 Stop)	**KP-DCT20-BR**	**1**

*Sensor and cable sold separa tely.





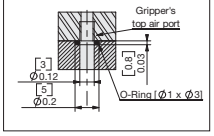


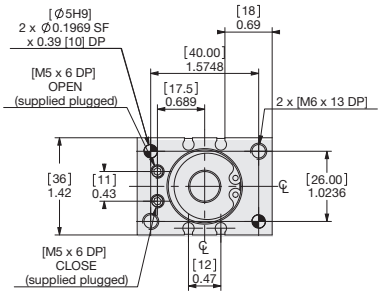


Specifications

	DCT-25M-RE	
Total Rated Grip Force, **F** @ 100 psi [7 bar]		
L = 1.75 in. [44mm] @ 0°	45 lbs.	199 N
Stroke	90° of stroke for each finger	
Weight	1.26 lbs.	0.57 Kg
Pressure Range	60-100 psi	4-7 Bar
Cylinder Bore Ø	0.984 in.	25 mm
Displacement	0.909 in^3.	14.9 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation (open/close)	0.25 / 0.19 sec.	
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.002 in.	±0.05 mm.
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Our grippers are supplied with open side air ports and top air ports plugged. When operating top air ports, produce manifold sealing as shown.





NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

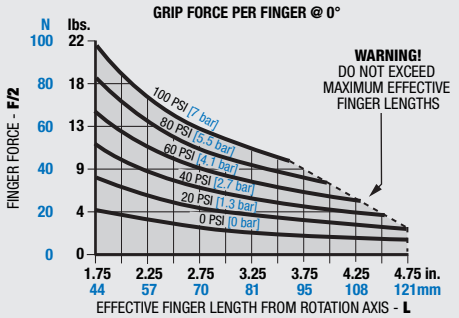
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

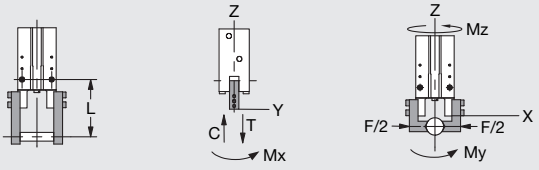
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

NOTE: Jaws have to be designed for a 0° gripping position (parallel ja ws). Jaws will close 1.5° past parallel. To limit shocks at the end of an opening or closing stroke, it is highly recommended to design ja ws with minimal inertia (as light and short as possible).

Flow Controls make it possible to reduce the rota tion speed and are highly recommended.

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	46 lbs.	205 N	9 lbs.	41 N
Maximum Compressive **C**	46 lbs.	205 N	9 lbs.	41 N
Maximum Moment M_x	89 in.-lbs.	10 Nm	22 in.-lbs.	2.5 Nm
Maximum Moment M_y	89 in.-lbs.	10 Nm	22 in.-lbs.	2.5 Nm
Maximum Moment M_z	89 in.-lbs.	10 Nm	22 in.-lbs.	2.5 Nm

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — VITON® SEALS

DCT - 25M - RE - V

SIZE — SPRING

SENSOR ACCESSORIES*

PNP Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSN-017**	**1 or 2**
Inductive Sensor Mounting Kit (mounts 2 sensors)	**SDCT25-32**	**1**
M8 PNP Inductive Sensor with Quick Disconnect*	**OISP-011**	**1 or 2**
M8 NPN Inductive Sensor with Quick Disconnect*	**OISN-011**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**

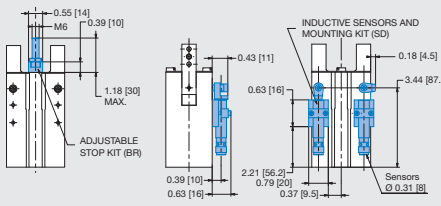
PNEUMATIC ACCESSORIES

M5 Adjustable Flow Control	**VLVF-008**	**1 or 2**
Buna-N Seal Repair Kit	**SLKT-162**	**1**
Viton® Seal Repair Kit	**SLKT-162V**	**1**

MOUNTING ACCESSORIES

Adjustment Stop Kit (1 Shielded Pla te + 1 Stop)	**KP-DCT25-BR**	**1**

*Sensor and cable sold separa tely.



DIRECTCONNECT™

ANGULAR GRIPPER CT-32M-RE
180° SERIES

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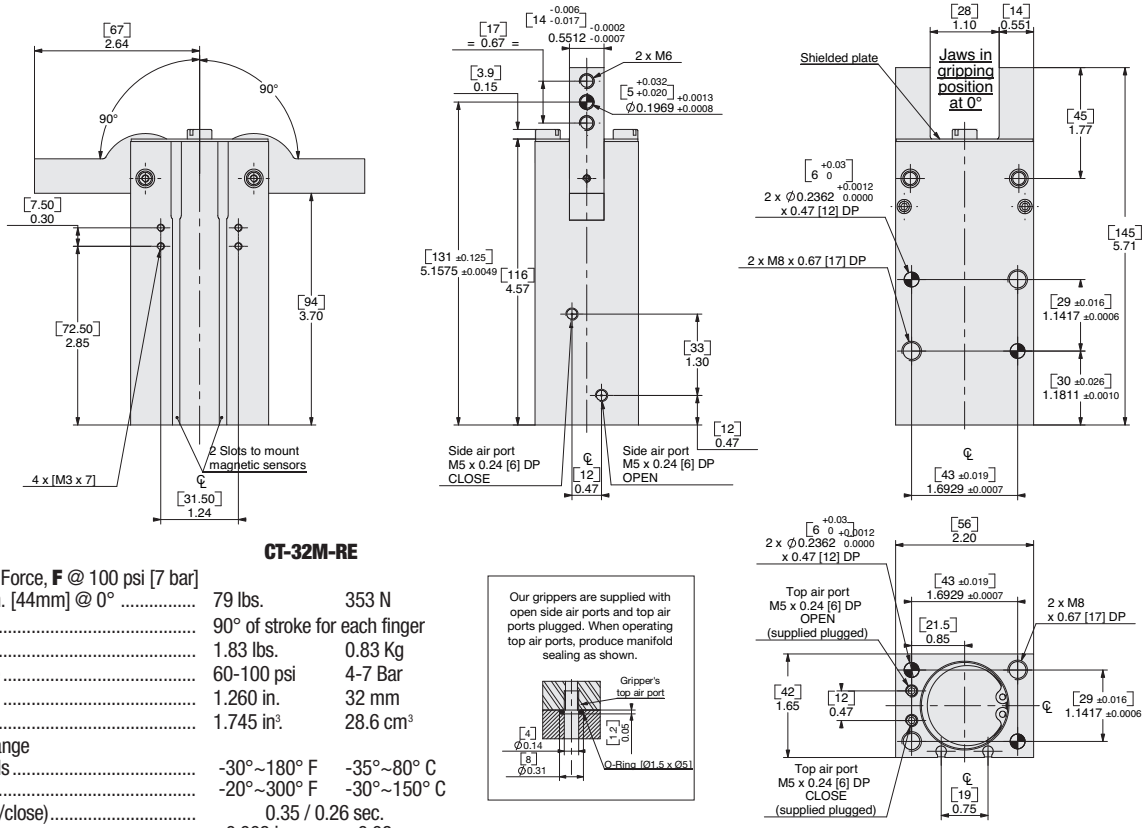


Specifications

	CT-32M-RE	
Total Rated Grip Force, **F** @ 100 psi [7 bar]		
L = 1.75 in. [44mm] @ 0°	79 lbs.	353 N
Stroke	90° of stroke for each finger	
Weight	1.83 lbs.	0.83 Kg
Pressure Range	60-100 psi	4-7 Bar
Cylinder Bore Ø	1.260 in.	32 mm
Displacement	1.745 in^3.	28.6 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation (open/close)	0.35 / 0.26 sec.	
Accuracy	±0.003 in.	±0.08 mm
Repeatability	±0.002 in.	±0.05 mm
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

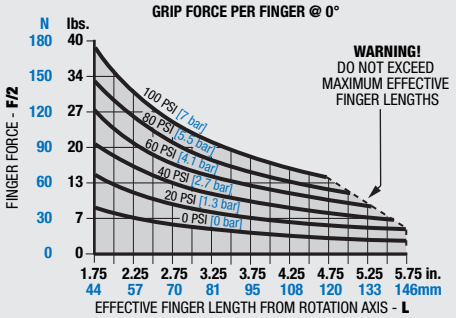
Metric Threads Course Pitch

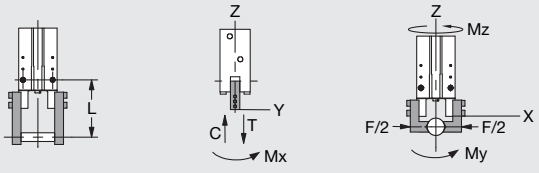
Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

NOTE: Jaws have to be designed for a 0° gripping position (parallel ja ws). Jaws will close 1.5° past parallel. To limit shocks at the end of an opening or closing stroke, it is highly recommended to design ja ws with minimal inertia (as light and short as possible).

Flow Controls make it possible to reduce the rota tion speed and are highly recommended.

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	65 lbs.	288 N	13 lbs.	57.6 N
Maximum Compressive **C**	65 lbs.	288 N	13 lbs.	57.6 N
Maximum Moment **Mx**	142 in.-lbs.	16 Nm	35 in.-lbs.	4 Nm
Maximum Moment **My**	142 in.-lbs.	16 Nm	35 in.-lbs.	4 Nm
Maximum Moment **Mz**	142 in.-lbs.	16 Nm	35 in.-lbs.	4 Nm

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — VITON® SEALS

CT - 32M - RE - V

SIZE — SPRING

SENSOR ACCESSORIES*

PNP Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor Short Barrel w/Qk Disc*	**OHSN-017**	**1 or 2**
Inductive Sensor Mounting Kit (mounts 2 sensors)	**SDCT25-32**	**1**
M8 PNP Inductive Sensor with Quick Disconnect*	**OISP-011**	**1 or 2**
M8 NPN Inductive Sensor with Quick Disconnect*	**OISN-011**	**1 or 2**
Quick Disconnect 2 Meter Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*	**CABL-013**	**1 or 2**

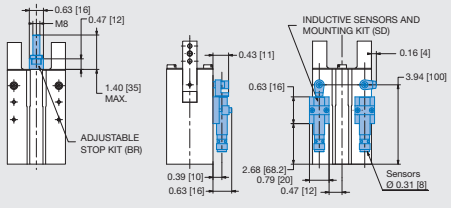
PNEUMATIC ACCESSORIES

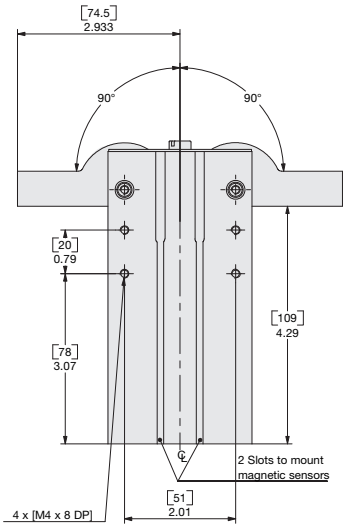
Adj. Flow Control M5 Elbow - 6mm OD Push-in (Metric)	**VLVF-008**	**1 or 2**
Buna-N Seal Repair Kit	**SLKT-163**	**1**
Viton® Seal Repair Kit	**SLKT-163V**	**1**

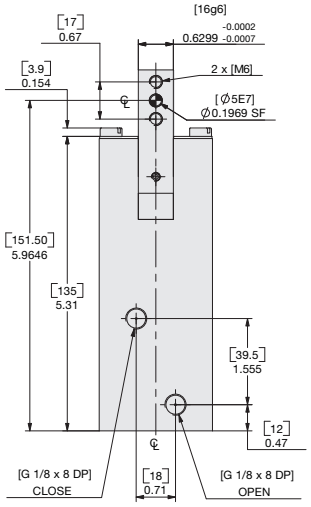
MOUNTING ACCESSORIES

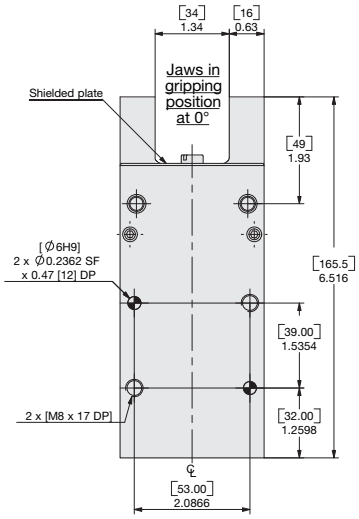
Adjustment Stop Kit (1 Shielded Pla te + 1 Stop)	**KP-CT32-BR**	**1**

*Sensor and cable sold separa tely.





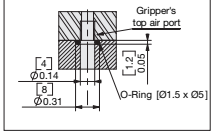


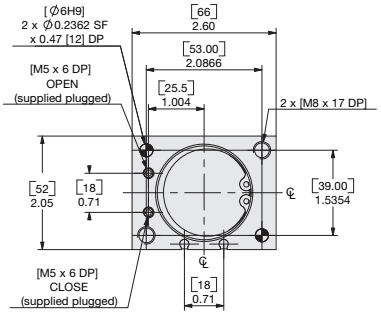


Specifications

	CT-40M-RE	
Total Rated Grip Force, **F** @ 100 psi [7 bar]		
L = 2 in. [51mm] @ 0°	133 lbs.	592 N
Stroke	90° of stroke for each finger	
Weight	3.06 lbs.	1.39 Kg
Pressure Range	60-100 psi	4-7 Bar
Cylinder Bore Ø	1.575 in.	40 mm
Displacement	3.173 in^3.	52 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation (open/close)	0.47 / 0.38 sec.	
Accuracy	±0.0036 in.	±0.09 mm
Repeatability	±0.002 in.	±0.05 mm.
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Our grippers are supplied with open side air ports and top air ports plugged. When operating top air ports, produce manifold sealing as shown.





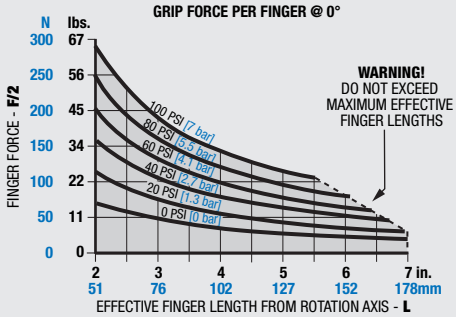
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

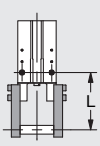
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

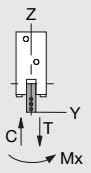
NOTE: Jaws have to be designed for a 0° gripping position (parallel ja ws). Jaws will close 1.5° past parallel. To limit shocks at the end of an opening or closing stroke, it is highly recommended to design ja ws with minimal inertia (as light and short as possible).

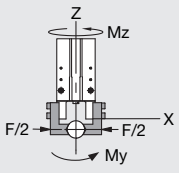
Flow Controls make it possible to reduce the rota tion speed and are highly recommended.

Loading Information









Loading Capacity†

	Static		Dynamic	
	Imperial	Metric	Imperial	Metric
Maximum Tensile **T**	94 lbs.	420 N	19 lbs.	84 N
Maximum Compressive **C**	94 lbs.	420 N	19 lbs.	84 N
Maximum Moment **Mx**	195 in.-lbs.	22 Nm	49 in.-lbs.	5.5 Nm
Maximum Moment **My**	195 in.-lbs.	22 Nm	49 in.-lbs.	5.5 Nm
Maximum Moment **Mz**	195 in.-lbs.	22 Nm	49 in.-lbs.	5.5 Nm

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — VITON® SEALS

CT - 40M - RE - V

SIZE — SPRING

SENSOR ACCESSORIES*

PNP Magneto Resistive Sensor Short Barrel M8 w/Qk Disc*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor Short Barrel M8 w/Qk Disc*	**OHSN-017**	**1 or 2**
Inductive Sensor Mounting Kit (mounts 2 sensors)	**SDCT40-63**	**1**
M12 PNP Inductive Sensor with M12 Quick Disconnect*	**OISP-017**	**1 or 2**
M12 NPN Inductive Sensor with M12 Quick Disconnect*	**OISN-017**	**1 or 2**
M8 Quick Disconnect 2 Meter Cable Length *	**CABL-010**	**1 or 2**
M8 Quick Disconnect 5 Meter Cable Length *	**CABL-013**	**1 or 2**
M12 Quick Disconnect 2 Meter Cable Length *	**CABL-014**	**1 or 2**
M12 Quick Disconnect 5 Meter Cable Length *	**CABL-018**	**1 or 2**

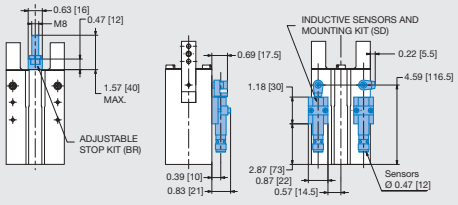
PNEUMATIC ACCESSORIES

Adj. Flow Control G1/8 Elbow - 6mm OD Push-in (Metric)	**VLVF-005**	**1 or 2**
Buna-N Seal Repair Kit	**SLKT-164**	**1**
Viton® Seal Repair Kit	**SLKT-164V**	**1**

MOUNTING ACCESSORIES

Adjustment Stop Kit (1 Shielded Pla te + 1 Stop)	**KP-CT40-BR**	**1**

*Sensor and cable sold separa tely.



ANGULAR GRIPPER CT-50M-RE
180° SERIES

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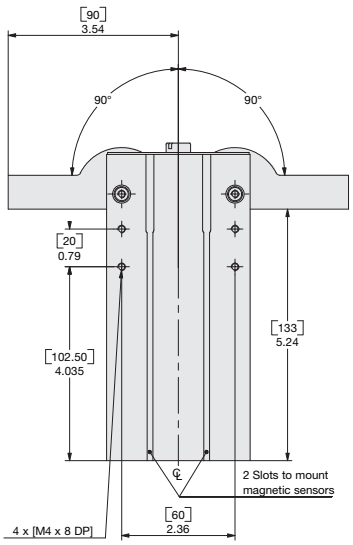
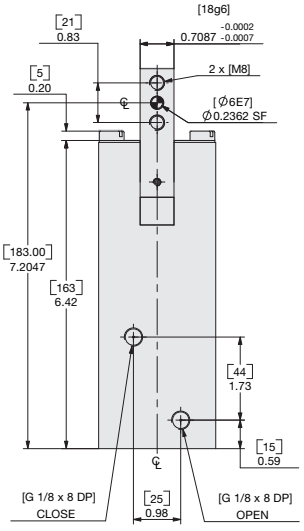
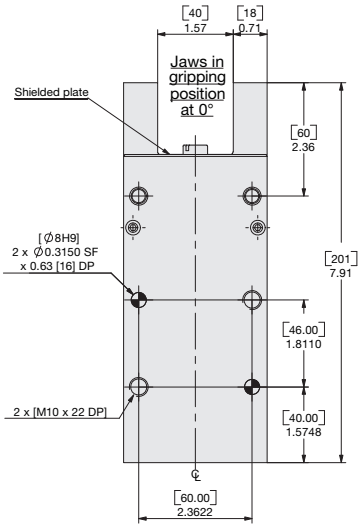


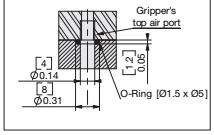


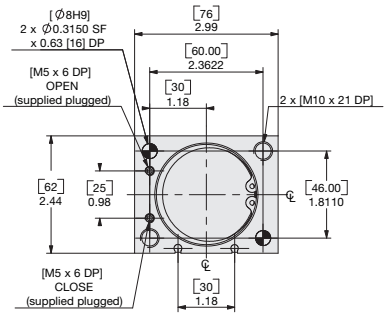


Specifications

	CT-50M-RE	
Total Rated Grip Force, **F** @ 100 psi [7 bar]		
L = 2.5 in. [64mm] @ 0°	201 lbs.	893 N
Stroke	90° of stroke for each finger	
Weight	4.87 lbs.	2.21 Kg
Pressure Range	60-100 psi	4-7 Bar
Cylinder Bore Ø	1.968 in.	50 mm
Displacement	5.614 in^3.	92 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation (open/close)	0.54 / 0.42 sec.	
Accuracy	±0.0036 in.	±0.09 mm
Repeatability	±0.002 in.	±0.05 mm.
Valve required to actuate single acting	3-way, 2-position	
Valve required to actuate double acting	4-way, 2-position	

Our grippers are supplied with open side air ports and top air ports plugged. When operating top air ports, produce manifold sealing as shown.





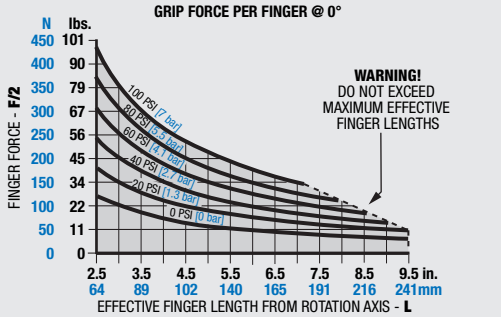
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

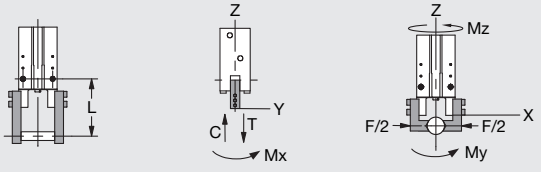
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

NOTE: Jaws have to be designed for a 0° gripping position (parallel ja ws). Jaws will close 1.5° past parallel. To limit shocks at the end of an opening or closing stroke, it is highly recommended to design ja ws with minimal inertia (as light and short as possible).

Flow Controls make it possible to reduce the rota tion speed and are highly recommended.

Loading Information





Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tensile **T**	110 lbs.	490 N	22 lbs.	98 N
Maximum Compressive **C**	110 lbs.	490 N	22 lbs.	98 N
Maximum Moment **Mx**	266 in.-lbs.	30 Nm	66 in.-lbs.	7.5 Nm
Maximum Moment **My**	266 in.-lbs.	30 Nm	66 in.-lbs.	7.5 Nm
Maximum Moment **Mz**	266 in.-lbs.	30 Nm	66 in.-lbs.	7.5 Nm

†Capacities are per set of ja ws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — VITON® SEALS

CT - 50M - RE - V

SIZE — SPRING

SENSOR ACCESSORIES*

PNP Magneto Resistive Sensor Short Barrel M8 w/Qk Disc*	**OHSP-017**	**1 or 2**
NPN Magneto Resistive Sensor Short Barrel M8 w/Qk Disc*	**OHSN-017**	**1 or 2**
Inductive Sensor Mounting Kit (mounts 2 sensors)	**SDCT40-63**	**1**
M12 PNP Inductive Sensor with Quick Disconnect*	**OISP-017**	**1 or 2**
M12 NPN Inductive Sensor with Quick Disconnect*	**OISN-017**	**1 or 2**
M8 Quick Disconnect 2 Meter Cable Length *	**CABL-010**	**1 or 2**
M8 Quick Disconnect 5 Meter Cable Length *	**CABL-013**	**1 or 2**
M12 Quick Disconnect 2 Meter Cable Length *	**CABL-014**	**1 or 2**
M12 Quick Disconnect 5 Meter Cable Length *	**CABL-018**	**1 or 2**

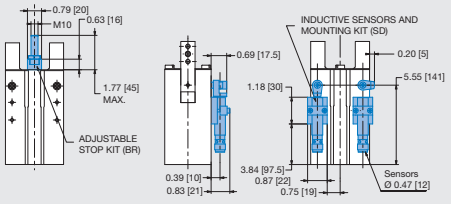
PNEUMATIC ACCESSORIES

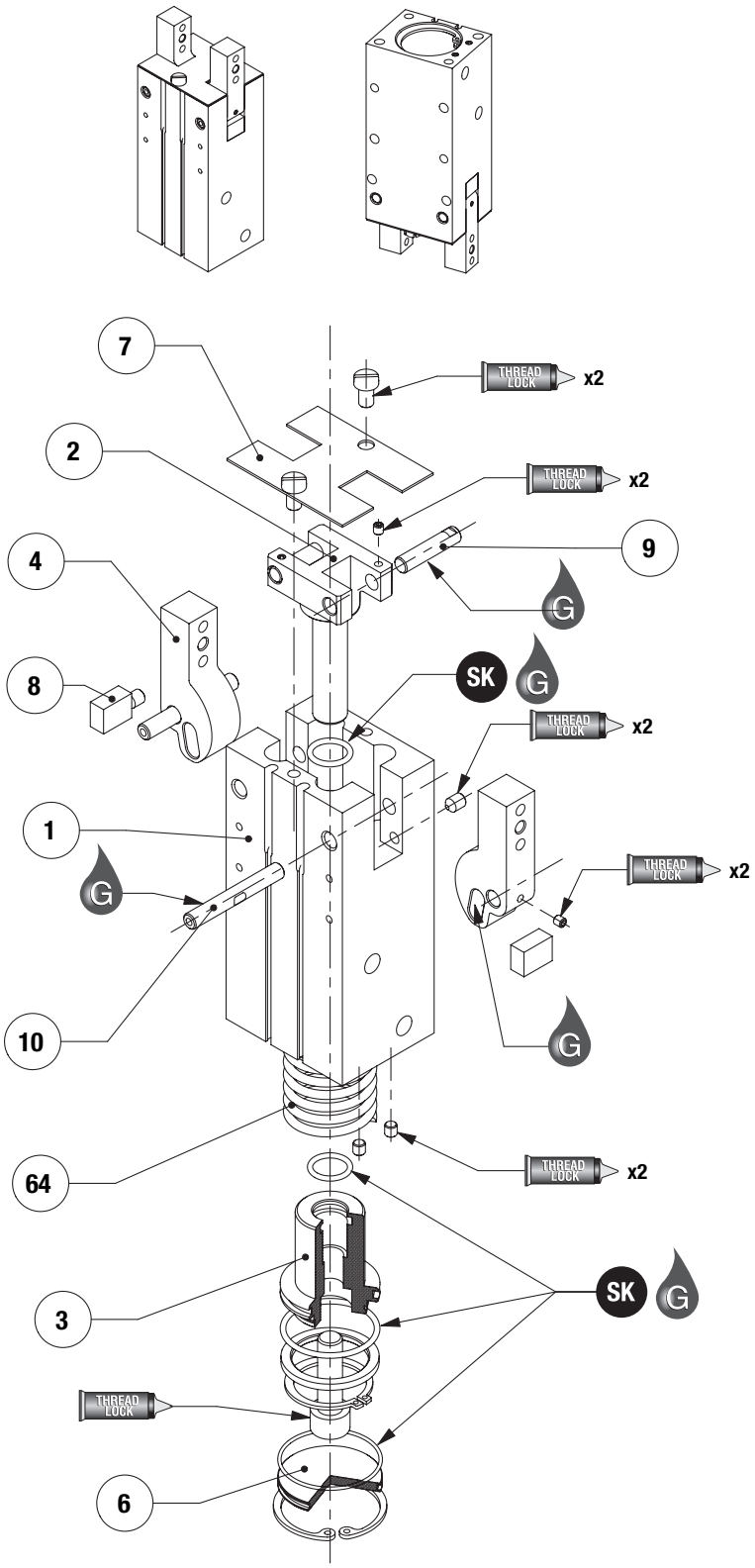
Adj. Flow Control G1/8 Elbow - 6mm OD Push-in (Metric)	**VLVF-005**	**1 or 2**
Buna-N Seal Repair Kit	**SLKT-165**	**1**
Viton® Seal Repair Kit	**SLKT-165V**	**1**

MOUNTING ACCESSORIES

Adjustment Stop Kit (1 Shielded Pla te + 1 Stop)	**KP-CT50-BR**	**1**

*Sensor and cable sold separa tely.





Item	Qty	Name
01	1	Body
02	1	Driver
03	1	Piston
04	2	Jaw
05	1	Washer
06	1	Cap
07	1	Shielded Plate
08	2	Wiper Cover
09	2	Drive Pin
10	2	Pivot Pin
54	1	Magnet
64	1	Spring

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

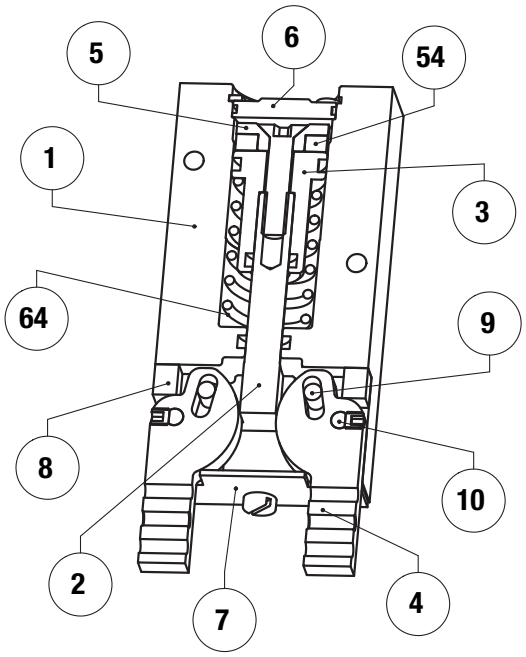
Assembly Procedure

1) Lubricate and install the seals into cap (x1), piston (x2) and body (x1)
2) If top air ports are used, clear them and plug the side air ports on the body (#1)
3) Lubricate the sloping rack of jaws (#4)
4) Install both drive pins (#9) into driver (#2) through sloping racks of jaws. Check that the pin flat surface is correctly aligned before continuing with their installation.
5) Lock drive pins in the driver with screws, tightening down on to the flat surface of the pins.
6) Position driver and jaws assembly into body.
7) Install both pivot pins (#10) into body, through the bore of jaws. Check that the pin flat surface is correctly aligned before continuing with their installation.
8) Pivot pin locking:
   - DCT-12 (not shown): lock pivot pins into body with screws, tightening down on to the flat surface of the pins (pins are fixed into body and rotating into jaws)
   - DCT-16 to CT-50: lock pivot pins into jaws with screws, tightening down on to the flat surface of the pins (pins are fixed into jaws and rotating into body)
9) Magnet mounting:
   - DCT-12 to DCT-20: install the magnet (#54) on the washer (#5)
   - DCT-25 to CT-50 (not shown): install magnet (#54) onto piston (#3) and lock it by means of its retaining ring.
10) Piston mounting:
   - DCT-12 to DCT-20: insert the spring, then the piston and the washer with magnet into body. Fix the assembly at the end of the driver with screw.
   - DCT-25 to CT-50 (not shown): insert the spring, then the piston with magnet into body. Fix the assembly at the end of the drivers with screw.
11) Check unit operation unladen.
12) Install the cap (#6) into body and lock it by means of its retaining ring.
13) Place both wiper covers (#8) into body and lock them with their screws.
14) Fix the shielded plate (#7) onto body with both screws.

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

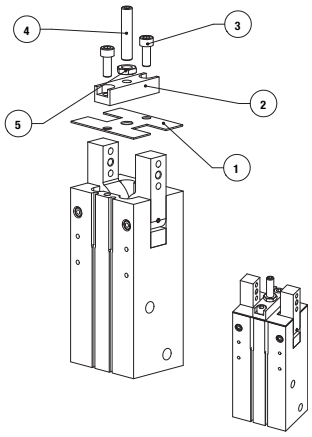
DCT-RE/CT-RE Series Assembled View



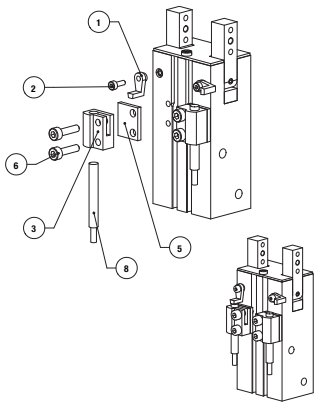
Item	Qty	Name
01	1	Body
02	1	Driver
03	1	Piston
04	2	Jaw
05	1	Washer
06	1	Cap
07	1	Shielded Plate
08	2	Wiper Cover
09	2	Drive Pin
10	2	Pivot Pin
54	1	Magnet
64	1	Spring

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

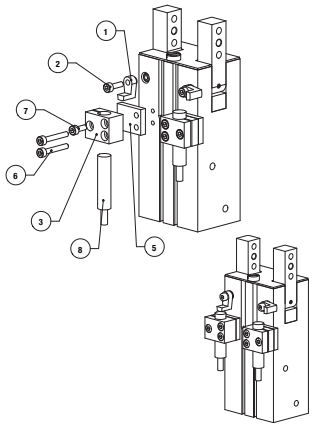
Accessory Installation & Adjustment Instructions



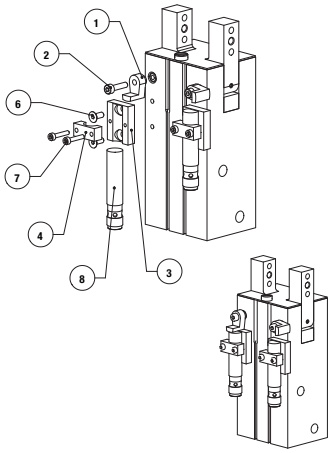
DCT16M, 20M-RE



DCT-25M, 32M-RE



CT-40M, 50M-RE



Installation - Adjustment Stop

1) Unscrew both screws for mounting of the shielded plate and remove it.
2) Fix the new shielded plate (#1) and the stop (#2) onto body with both screws (#3)
3) Install the locknut system (#4) and (#5) on the stop.
4) Tighten screw for maximum target jaw opening and lock with locknut.

Installation - Inductive Sensor Holders

1) Fix the flags (#1) at the end of pivot pins with their screws (#2)
2) Holder mounting:
   - DCT-16M to DCT-32M: fix holder (#3) and spacer (#5) onto bod y with both screws (#6)
   - CT-40M to CT-50M: fix holder (#3) onto bod y with both screws (#6)
3) Sensor mounting:
   - DCT-16M to DCT-20M: unscrew lightly both screws for mounting (#6) of holder and insert sensor (#8, not included) into it. Position sensor so that it senses up on flag. Lock the sensor by tightening both screws.
   - DCT-25M to DCT-32M: unscrew lightly screw (#7) on holder and insert sensor (#8, not included) into it. Position sensor so that it senses up the flag. Lock the sensor by tightening screw.
   - CT-40M to CT-50M: insert sensor (#8, not included) in stop into holder. Lock the sensor by tightening the collar holder with both screws (not sho wn).
4) Adjust flag position by unscrewing their screws for desired sensing positions.

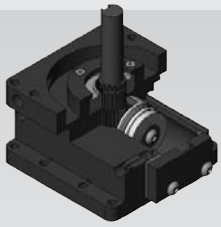
SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

Rotary Actuators

NEW

DRG
DIRECTCONNECT

Shaft Output Rotary Actuator



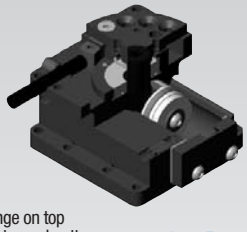
- For use in applications where low precision end stop positioning and backlash are acceptable
- Great for inverter gates, escapements, ejection stations.
- Provides rotational torque for payloads positioned and decelerated by customers supplied shocks and stops.
- End stop positioning for built-in precision end stop positioning and zero backlash see our DRF Rotary Actuator Series.
- Multiple Body Mounting Locations: Tapped and thru flange on top and bottom mounting surfaces, DIRECTCONNECT tapped pattern on bottom surface.

See Page 3.2

NEW

DRF
DIRECTCONNECT

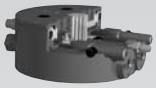
Flange Output Rotary Actuator



- For use in applications where precision end stop position and zero backlash are required.
- Multiple Mounting Locations: Tapped and thru flange on top and bottom mounting surfaces, DIRECTCONNECT tapped pattern on bottom flange.
- Turntable has DIRECTCONNECT mounting pattern.

See Page 3.14

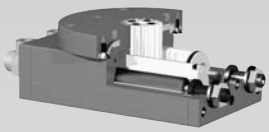
RR-18/28
Light Duty Rack and Pinion Rotary Actuator Series



- Designed for small or lightweight
- Low profile and bearing supported turn table provides an extremely compact package for tight space applications
- Payload can be connected directly to the turn table. Eliminates the need for a bearing block.
- Zero backlash, preloaded ball bearings, and slip fit dowel pins make this a very precise and repeatable rotary actuator

See Page 3.26

RR-36/46
Medium Duty Rack and Pinion Rotary Actuator Series



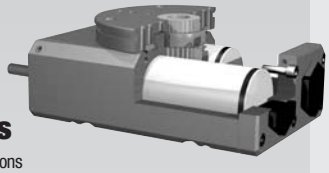
- Low profile and bearing supported turn table provides an extremely compact package for tight space applications
- Payload can be connected directly to the turn table. Eliminates the need for a bearing block.
- Zero backlash, preloaded ball bearings, and slip fit dowel pins make this a very precise and repeatable rotary actuator
- Air manifold option available
- Midstop position available

See Page 3.32

Optional Mid Stop
Model RR-36M See Page 3.35
Model RR-46M See Page 3.37

Optional Rotary Manifold
Model RR-36M See Page 3.35
Model RR-46M See Page 3.37

RR-56/66/76
Heavy Duty Rack and Pinion Rotary Actuator Series



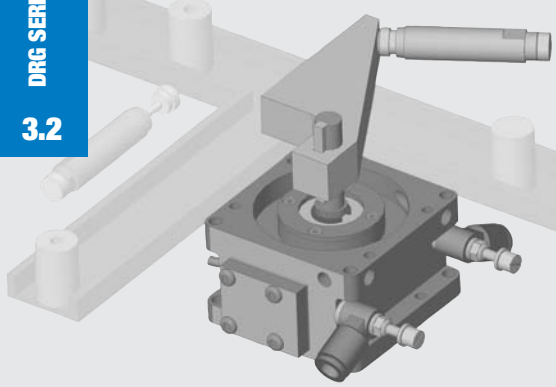
- Designed for large or heavy-duty applications
- Low profile and bearing supported turn table provides an extremely compact package for tight space applications
- Payload can be connected directly to the turn table. Eliminates the need for a bearing block.
- Zero backlash, preloaded ball bearings, and slip fit dowel pins make this a very precise and repeatable rotary actuator
- Air manifold option available
- Midstop position available

See Page 3.42

Optional Mid Stop
Model RR-56M See Page 3.45
Model RR-66M See Page 3.47
Model RR-76M See Page 3.53

Optional Rotary Manifold
Model RR-56M See Page 3.45
Model RR-66M See Page 3.47
Model RR-76M See Page 3.53

Rotary Actuator - DRG DIRECTCONNECT Shaft Output Rotaries



NO ADAPTER PLATES!

Application: Use in applications where low precision end stop positioning and backlash are acceptable

Application Examples: Diverter gates, escapements, ejection stations.

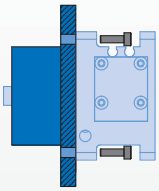
Torque Generation: Provides rotational torque for payloads positioned and decelerated by customers supplied shocks and stops.

End Stop Positioning: For built-in precision end stop positioning and zero backlash see our DRF Rotary Actuator Series.

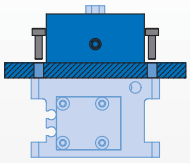
Multiple Body Mounting Locations: Tapped and thru flange on top and bottom mounting surfaces, DirectConnect tapped pattern on bottom surface.

Mounting Information:

Rotaries can be mounted & operated in any orientation

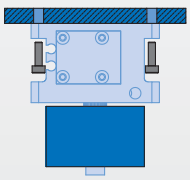


Mounting thru top flange clearance holes into tapped holes in customer application

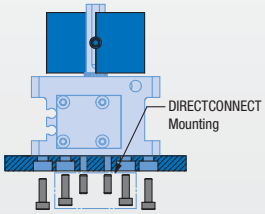


Mounting from underside of table using tapped holes in body top flange

Payload is attached to output shaft using standard keys and set screws



Mounting thru bottom flange clearance holes into tapped holes in customer application



Body mounts with screws and slip fit dowels from bottom side

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**

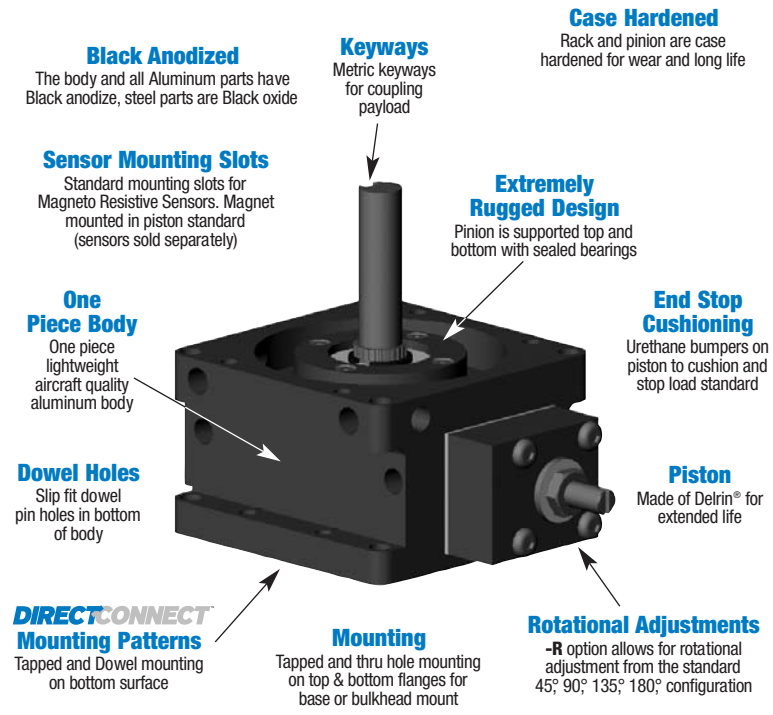
Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

Application Restrictions
Application requiring precise positioning and no backlash (See DRF product line)

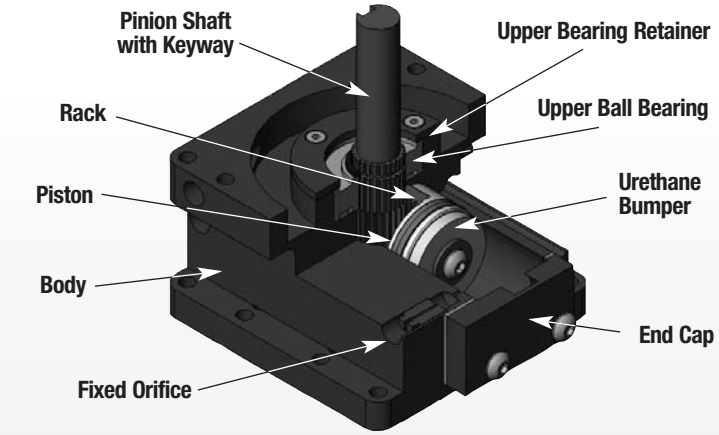
*Addition of lubrication will greatly increase service life

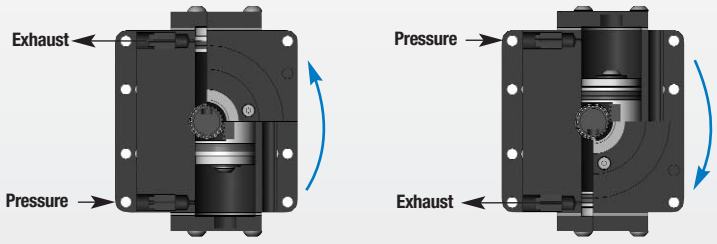
DIRECTCONNECT™

Product Features



Operating Principle





- Air pressure supplied to the piston drives the piston/rack.
- The piston/rack drives the pinion.
- The pinion is supported in the body by two sealed ball bearings.
- Ends of the piston have Urethane bumpers to cushion, stop and position the load at the end of the stroke.
- This rotary is suitable for operation in any orientation

Designed and manufactured in the USA

Style - DRG Rotary Actuator

Size -075M

Style:	DRG-075M	
Max. Payload:	0.5 lbs.	.2 kg
Torque:	8 in-lbs.	.9 N-m
Weight:	0.54 lbs.	0.24 Kg

See Page 3.4

Style - DRG Rotary Actuator

Size -094M

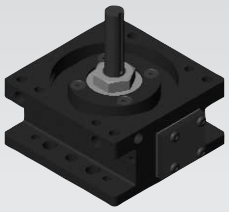
Style:	DRG-094M	
Max. Payload:	1.5 lbs.	.7 kg
Torque:	17 in-lbs.	2.0 N-m
Weight:	1.0 lbs.	0.45 Kg

See Page 3.6

Style - DRG Rotary Actuator

Size -106M

Style:	DRG-106M	
Max. Payload:	4 lbs.	1.8 kg
Torque:	33 in-lbs.	3.7 N-m
Weight:	2.5 lbs.	1.1 Kg

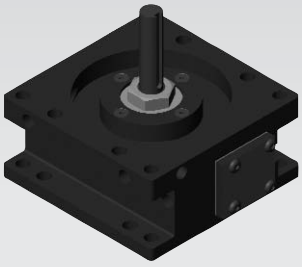


See Page 3.8

Style - DRG Rotary Actuator

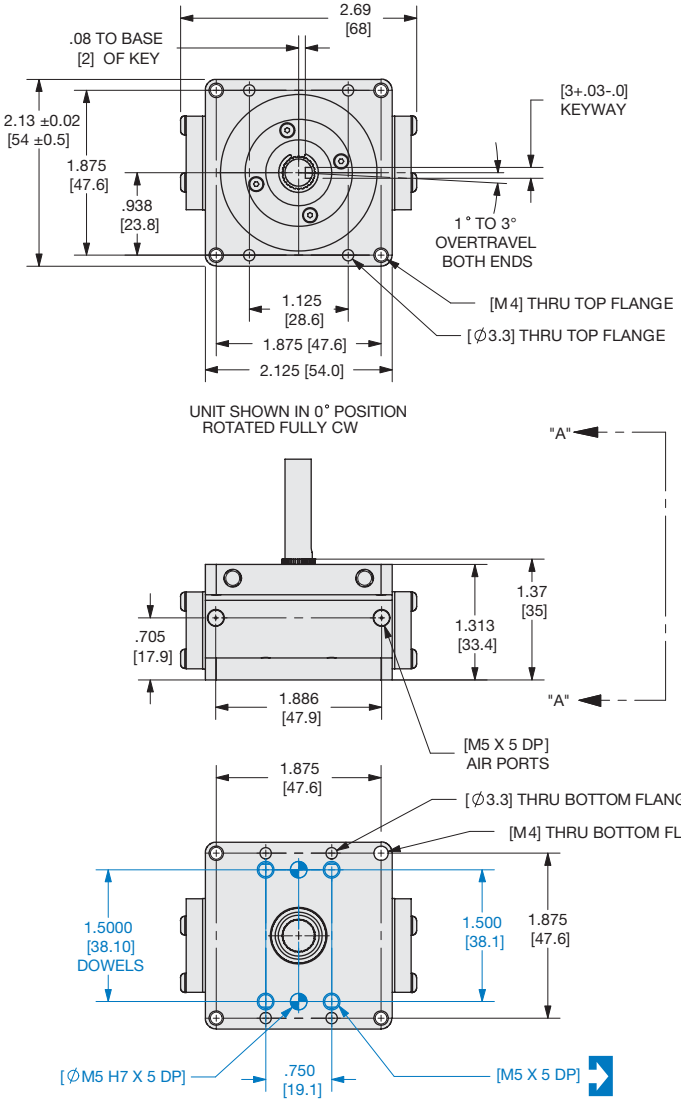
Size -131M

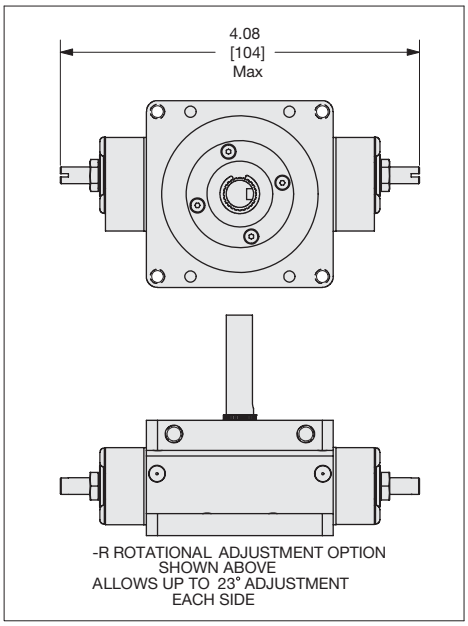
Style:	DRG-131M	
Max. Payload:	8 lbs.	3.6 kg
Torque:	68 in-lbs.	7.6 N-m
Weight:	5.4 lbs.	2.4 Kg

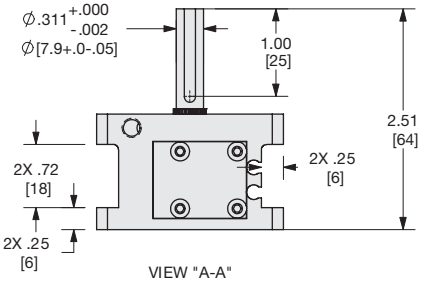


See Page 3.10

ROTARY ACTUATOR DRG-075M
SHAFT OUTPUT SERIES







UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	**Metric [mm]** [0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — ROTATION

DRG-075M - [ ] - R

ROTATIONAL ADJUSTMENTS

DEGREES OF ROTATION: 45°, 90°, 135°,180°
(for intermediate degrees of rotation use **-R** option)

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Magneto Resistive Sensor (PNP)*	**OHSP-017**	**1 or 2**
Magneto Resistive Sensor (NPN)*	**OHSN-017**	**1 or 2**
Magneto Resistive Sensor 90° Barrel (PNP)*	**OHSP-011**	**1 or 2**
Magneto Resistive Sensor 90° Barrel (NPN)*	**OHSN-011**	**1 or 2**
Quick Disconnect Cable (2 meters long)*	**CABL-010**	**1 or 2**
Quick Disconnect Cable (5 meters long)*	**CABL-013**	**1 or 2**

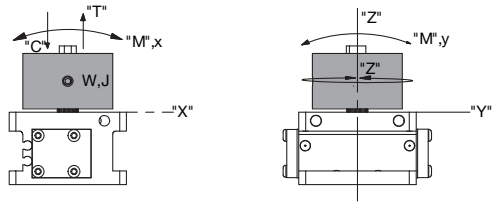
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair kit (Standard Buna-N)	**SLKT-210**	**1**
Rotational Adjustment Seal Kit (Standard Buna-N)	**SLKT-212**	**1**
Flow Control Push-in 90° Elbow M5-6mm O.D. Tube**	**VLVF-008**	**1 or 2**

*Sensor and cable sold separately
**Flow Controls recommended for most applications

SAMPLE ORDER: DRG-075M-180-R
Ex: DRG Rotary, size 075, metric, 180° rotation with rotational adjustment option

DIRECTCONNECT™

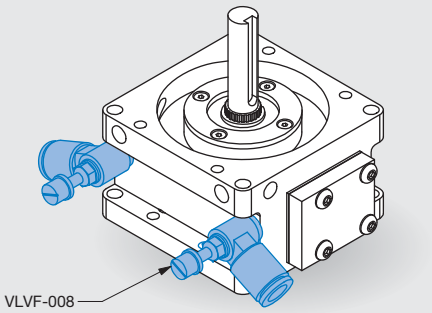
Specifications	DRG-075M	
Maximum Payload	0.5 lbs.	0.23 kg
Maximum Payload Inertia	0.0008 in-lbs.-sec.^{2}	9.0 X10^{-5}N-m-sec.^{2}
Maximum Torque @ 100psi/7 bar	8.3 lbs.-in.	0.9 N-m
Maximum Rotation	180°	180°
Pitch Diameter of Pinion	0.375 in.	9.5 mm
Weight without rotational adjuster	0.52 lbs.	0.24 kg
Weight without rotational adjuster (-R option)	0.72 lbs.	0.33 kg
Pressure Range	40-100 psi	3-7 bar
Bore	0.750 in.	19.1 mm
Displacement (180°)	0.31 in^3.	5.1 cm^3
Actuation Time (180° @ 100psi/7 bar)	0.38 sec.	0.38 sec.
Actuation Time (90° @ 100psi/7 bar)	0.29 sec.	0.29 sec.
Temperature Range: Standard Seals	-30°~180° F	-35°~82° C
End Stop Adjustability (-R option)	23°	23°
Over Travel (each end)	1° to 3°	1° to 3°
Valve required to actuate	4-way, 2-position	



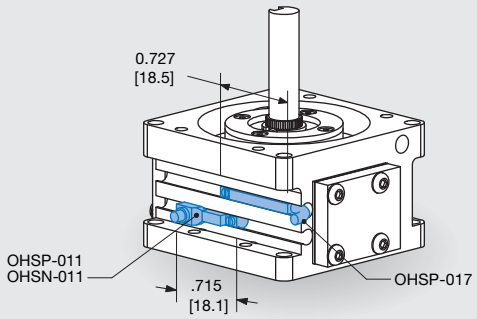
Loading Capacity	Static	Dynamic
Maximum Tensile **T**	10 lbs. [44 N]	2 lbs. [9 N]
Maximum Compressive **C**	20 lbs. [89 N]	4 lbs. [18 N]
Maximum Moment **Mx**	20 in-lbs. [2.3 Nm]	4 in-lbs. [0.5 Nm]
Maximum Moment **My**	20 in-lbs. [2.3 Nm]	4 in-lbs. [0.5 Nm]
Maximum Payload **W**		0.5 lbs. [.23 kg]
Maximum Inertia **J**		.0008 in-lbs.-sec.^{2} [9.0 X 10^{-5}N-m-sec.^{2}]

Note: Higher payloads and inertia possible with external shocks and stops.

Accessory Mounting Technical Data



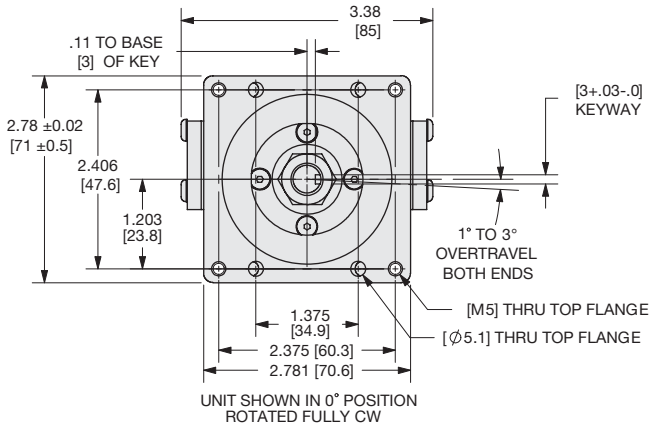
Flow Controls
- Flow controls for adjusting rotational speed

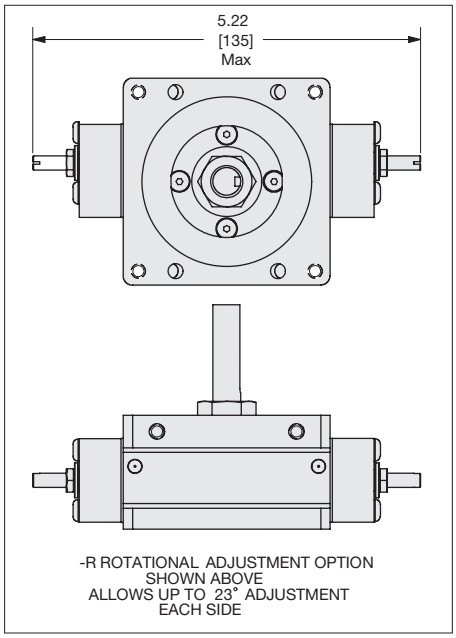


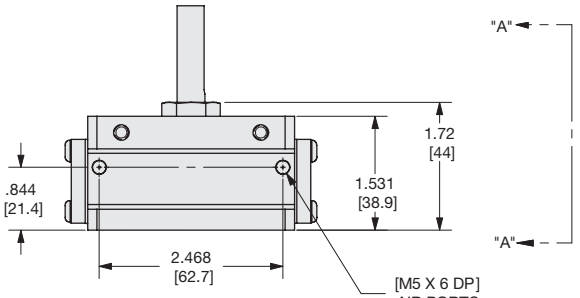
Sensors
- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)
- Sensor Magnet standard

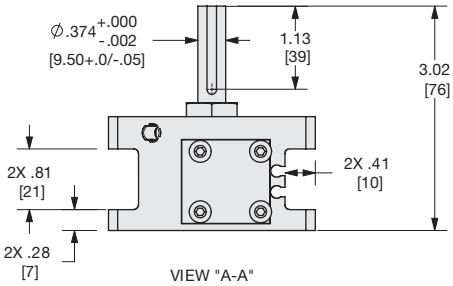
DIRECT CONNECT™

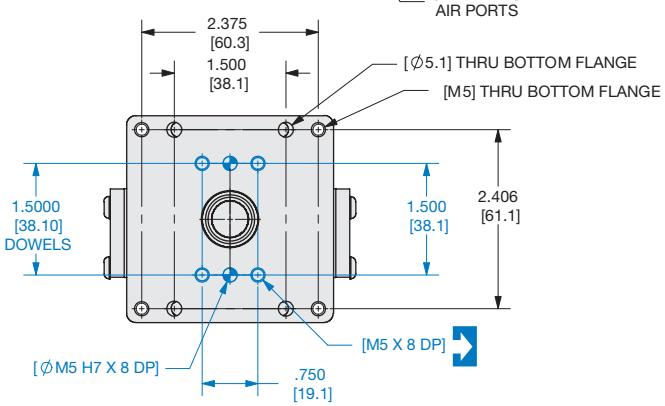
ROTARY ACTUATOR DRG-094M
SHAFT OUTPUT SERIES











UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ±.01 0.000 = ±.005 0.0000 = ±.0005	**Metric [mm]** [0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — ROTATION

DRG-094M - [ ] - R

ROTATIONAL ADJUSTMENTS

DEGREES OF ROTATION: 45°, 90°, 135°,180°
(for intermediate degrees of rotation use **-R** option)

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Magneto Resistive Sensor (PNP)*	**OHSP-017**	**1 or 2**
Magneto Resistive Sensor (NPN)*	**OHSN-017**	**1 or 2**
Magneto Resistive Sensor 90° Barrel (PNP)*	**OHSP-011**	**1 or 2**
Magneto Resistive Sensor 90° Barrel (NPN)*	**OHSN-011**	**1 or 2**
Quick Disconnect Cable (2 meters long)*	**CABL-010**	**1 or 2**
Quick Disconnect Cable (5 meters long)*	**CABL-013**	**1 or 2**

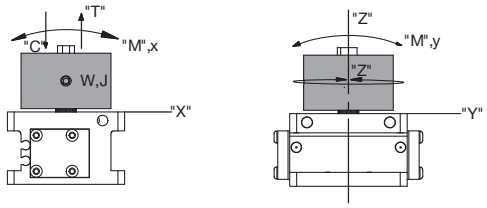
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair kit (Standard Buna-N)	**SLKT-216**	**1**
Rotational Adjustment Seal Kit (Standard Buna-N)	**SLKT-218**	**1**
Flow Control Push-in 90° Elbow M5-6mm O.D. Tube**	**VLVF-008**	**1 or 2**

*Sensor and cable sold separately
**Flow Controls recommended for most applications

SAMPLE ORDER: DRG-094M-180-R
Ex: DRG Rotary, size 094, metric, 180° rotation with rotational adjustment option

DIRECTCONNECT™

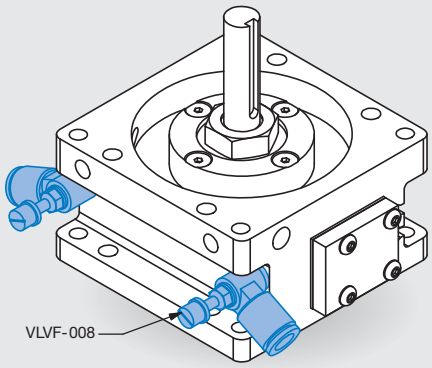
Specifications	DRG-094M	
Maximum Payload	1.5 lbs.	0.68 kg
Maximum Payload Inertia	0.0056 in-lbs.-sec.^{2}	6.3 X10^{-4}N-m-sec.^{2}
Maximum Torque @ 100psi/7 bar	17.3 lbs.-in.	1.9 N-m
Maximum Rotation	180°	180°
Pitch Diameter of Pinion	0.500 in.	12.7 mm
Weight without rotational adjuster	1.0 lbs.	0.45 kg
Weight without rotational adjuster (-R option)	1.2 lbs.	0.54 kg
Pressure Range	40-100 psi	3-7 bar
Bore	0.938 in.	23.8 mm
Displacement (180°)	0.55 in^3.	9.0 cm^3
Actuation Time (180° @ 100psi/7 bar)	0.38 sec.	0.38 sec.
Actuation Time (90° @ 100psi/7 bar)	0.29 sec.	0.29 sec.
Temperature Range: Standard Seals	-30°~180° F	-35°~82° C
End Stop Adjustability (-R option)	23°	23°
Over Travel (each end)	1° to 3°	1° to 3°
Valve required to actuate	4-way, 2-position	



Loading Capacity	Static	Dynamic
Maximum Tensile **T**	15 lbs. [67 N]	3 lbs. [13 N]
Maximum Compressive **C**	30 lbs. [133 N]	6 lbs. [27 N]
Maximum Moment $\mathbf{M_x}$	50 in-lbs. [5.6 Nm]	10 in-lbs. [1.1 Nm]
Maximum Moment $\mathbf{M_y}$	50 in-lbs. [5.6 Nm]	10 in-lbs. [1.1 Nm]
Maximum Payload **W**		1.5 lbs. [0.68 kg]
Maximum Inertia **J**		0.0056 in-lbs.-sec.^{2} [6.3 X 10^{-4}N-m-sec.^{2}]

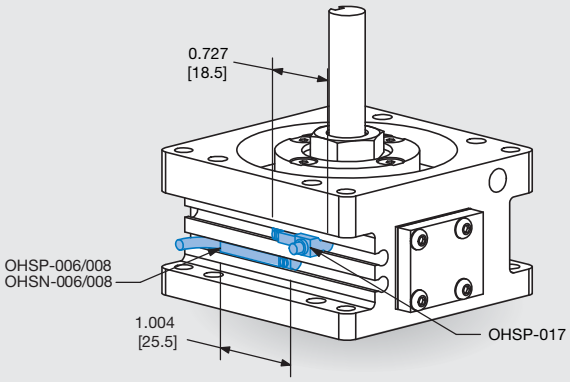
Note: Higher payloads and inertia possible with external shocks and stops.

Accessory Mounting Technical Data



Flow Controls

- Flow controls for adjusting rotational speed

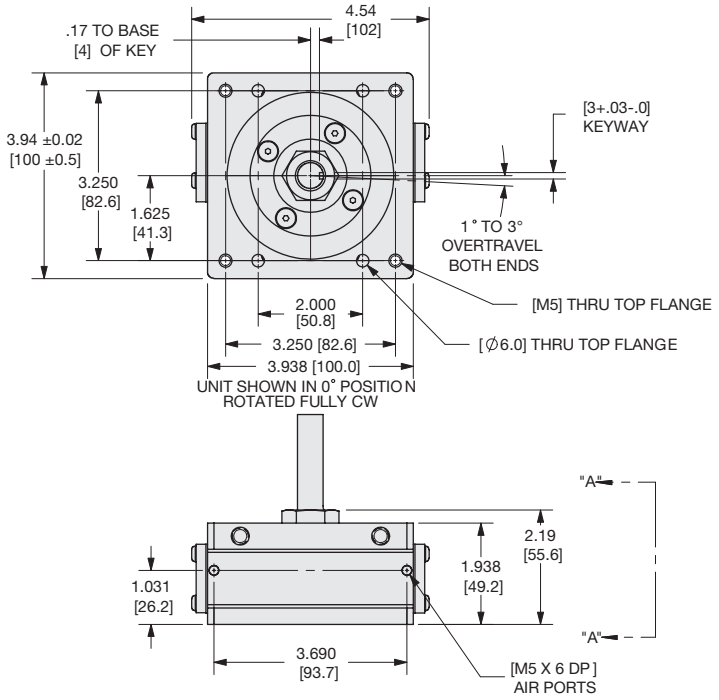


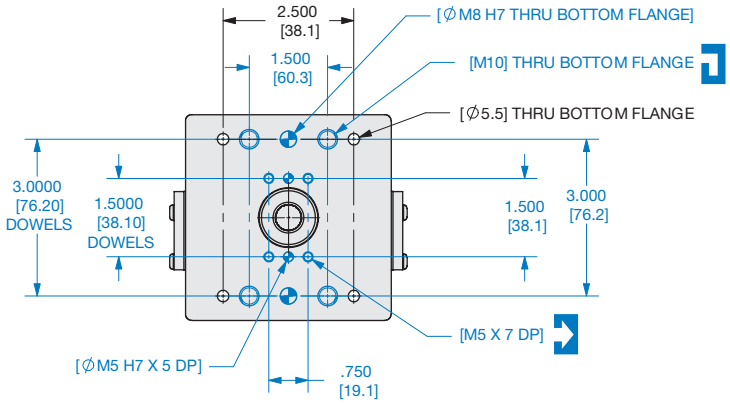
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)
- Sensor Magnet standard

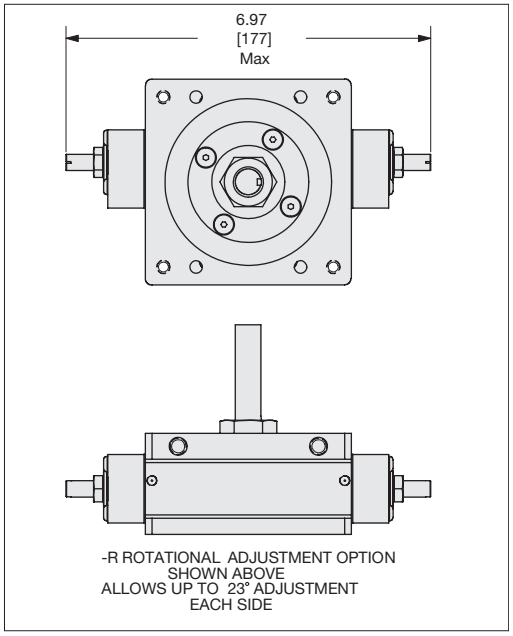
DIRECTCONNECT™

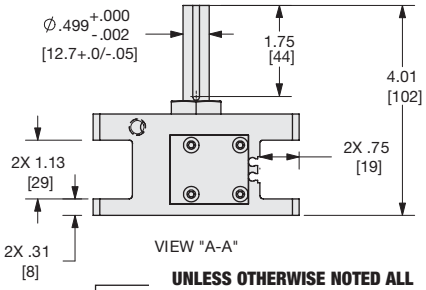
ROTARY ACTUATOR DRG-106M
SHAFT OUTPUT SERIES





NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE





UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	**Metric [mm]** [0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — ROTATION

DRG-106M - [ ] - R

ROTATIONAL ADJUSTMENTS

DEGREES OF ROTATION: 45°, 90°, 135°,180°
(for intermediate degrees of rotation use **-R** option)

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Magneto Resistive Sensor (PNP)*	**OHSP-017**	**1 or 2**
Magneto Resistive Sensor (NPN)*	**OHSN-017**	**1 or 2**
Magneto Resistive Sensor 90° Barrel (PNP)*	**OHSP-011**	**1 or 2**
Magneto Resistive Sensor 90° Barrel (NPN)*	**OHSN-011**	**1 or 2**
Quick Disconnect Cable (2 meters long)*	**CABL-010**	**1 or 2**
Quick Disconnect Cable (5 meters long)*	**CABL-013**	**1 or 2**

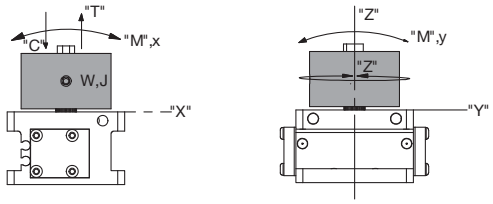
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair kit (Standard Buna-N)	**SLKT-222**	**1**
Rotational Adjustment Seal Kit (Standard Buna-N)	**SLKT-224**	**1**
Flow Control Push-in 90° Elbow M5-6mm O.D. Tube**	**VLVF-008**	**1 or 2**

*Sensor and cable sold separately
**Flow Controls recommended for most applications

SAMPLE ORDER: DRG-106M-180-R
Ex: DRG Rotary, size 106, metric, 180° rotation with rotational adjustment option

DIRECTCONNECT™

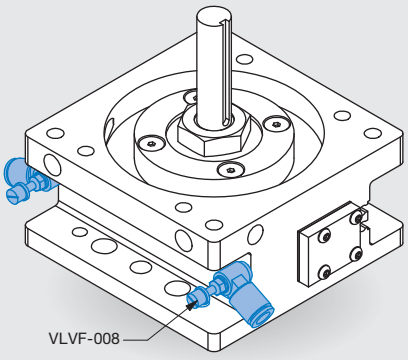
Specifications	DRG-106M	
Maximum Payload	4 lbs.	1.8 kg
Maximum Payload Inertia	0.0207 in-lbs.-sec.^{2}	2.3 X10^{-3} N-m-sec.^{2}
Maximum Torque @ 100psi/7 bar	33.2 lbs.- in.	3.8 N-m
Maximum Rotation	180°	180°
Pitch Diameter of Pinion	0.750 in.	19.1 mm
Weight without rotational adjuster	2.5 lbs.	1.1 kg
Weight without rotational adjuster (-R option)	2.7 lbs.	1.2 kg
Pressure Range	40-100 psi	3-7 bar
Bore	1.063 in.	27.0 mm
Displacement (180°)	1.16 in^3.	19.0 cm^3
Actuation Time (180° @ 100psi/7 bar)	0.60 sec.	0.60 sec.
Actuation Time (90° @ 100psi/7 bar)	0.45 sec.	0.45 sec.
Temperature Range: Standard Seals	-30°~180° F	-35°~82° C
End Stop Adjustability (-R option)	23°	23°
Over Travel (each end)	1° to 3°	1° to 3°
Valve required to actuate	4-way, 2-position	



Loading Capacity	Static	Dynamic
Maximum Tensile **T**	25 lbs. [111 N]	5 lbs. [22 N]
Maximum Compressive **C**	50 lbs. [222 N]	10 lbs. [44 N]
Maximum Moment $\mathbf{M_x}$	75 in-lbs. [8.5 Nm]	15 in-lbs. [1.7 Nm]
Maximum Moment $\mathbf{M_y}$	75 in-lbs. [8.5 Nm]	15 in-lbs. [1.7 Nm]
Maximum Payload **W**		4 lbs. [1.8 kg]
Maximum Inertia **J**		0.0207 in-lbs.-sec.^{2} [2.3 X 10^{-3} N-m-sec.^{2}]

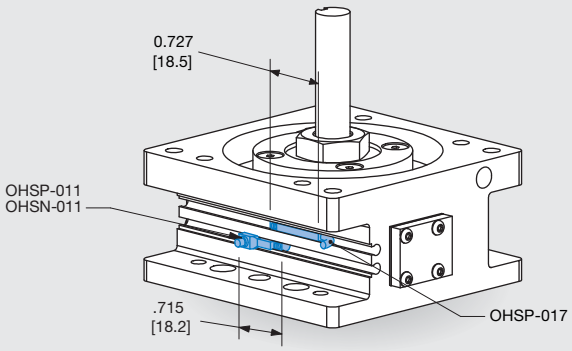
Note: Higher payloads and inertia possible with external shocks and stops.

Accessory Mounting Technical Data



Flow Controls

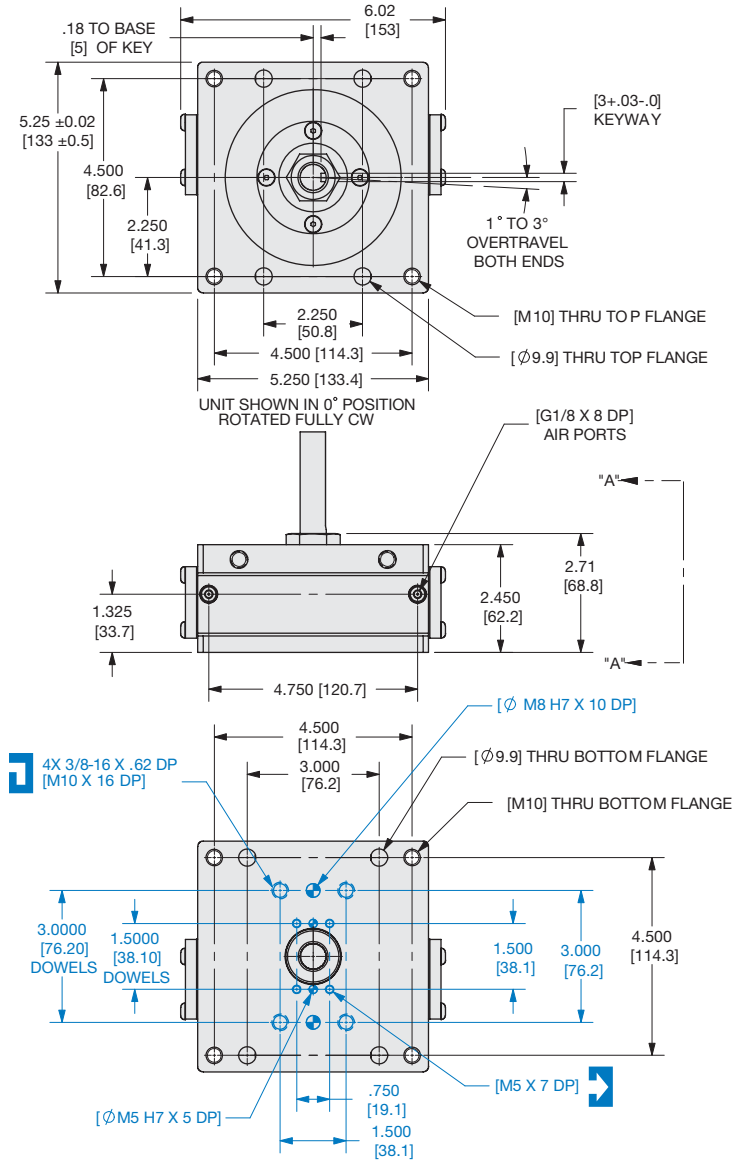
- Flow controls for adjusting rotational speed



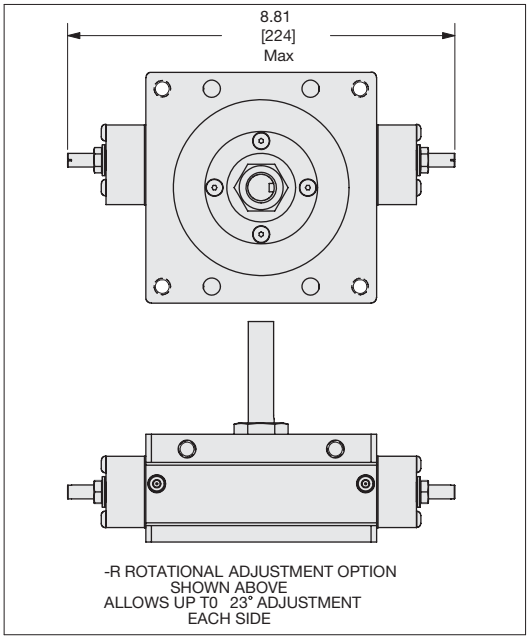
Sensors

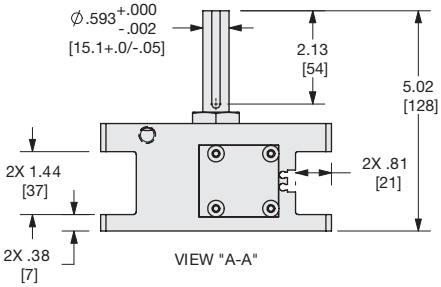
- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)
- Sensor Magnet standard

ROTARY ACTUATOR DRG-131M
SHAFT OUTPUT SERIES



NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE





UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ±.01 0.000 = ±.005 0.0000 = ±.0005	**Metric [mm]** [0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — ROTATION

DRG-131M - [ ] **- R**

ROTATIONAL ADJUSTMENTS

DEGREES OF ROTATION: 45°, 90°, 135°,180°
(for intermediate degrees of rotation use **-R** option)

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
Magneto Resistive Sensor (PNP)*	**OHSP-017**	**1 or 2**
Magneto Resistive Sensor (NPN)*	**OHSN-017**	**1 or 2**
Magneto Resistive Sensor 90° Barrel (PNP)*	**OHSP-011**	**1 or 2**
Magneto Resistive Sensor 90° Barrel (NPN)*	**OHSN-011**	**1 or 2**
Quick Disconnect Cable (2 meters long)*	**CABL-010**	**1 or 2**
Quick Disconnect Cable (5 meters long)*	**CABL-013**	**1 or 2**

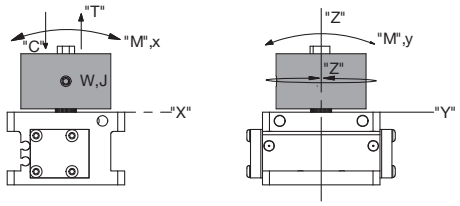
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair kit (Standard Buna-N)	**SLKT-228**	**1**
Rotational Adjustment Seal Kit (Standard Buna-N)	**SLKT-230**	**1**
Fitting Push-in 90° Elbow G1/8, 6mm O.D. Tube	**PLFT-042**	**1 or 2**
Fitting Push-in 90° Elbow G1/8, 8mm O.D. Tube	**PLFT-048**	**1 or 2**
Fitting Push-in Straight G1/8, 6mm O.D. Tube	**PLFT-038**	**1 or 2**
Fitting Push-in Straight G1/8, 8mm O.D. Tube	**PLFT-045**	**1 or 2**
Flow Control Push-in 90° Elbow G1/8, 6mm O.D. Tube**	**VLVF-005**	**1 or 2**

*Sensor and cable sold separately
**Flow Controls recommended for most applications

SAMPLE ORDER: DRG-131M-180-R
Ex: DRG Rotary, size 131, metric, 180° rotation with rotational adjustment option

DIRECTCONNECT™

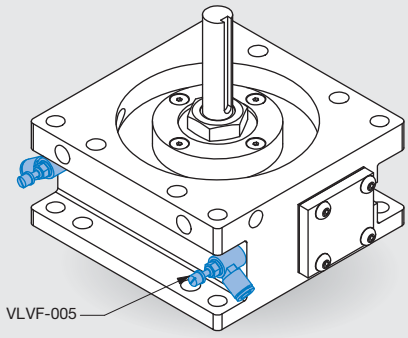
Specifications	DRG-131M	
Maximum Payload	7.5 lbs.	3.4 kg
Maximum Payload Inertia	0.0485 in-lbs.-sec.^{2}	5.5 X10^{-3}N-m-sec.^{2}
Maximum Torque @ 100psi/7 bar	68 lbs-in.	7.6 N-m
Maximum Rotation	180°	180°
Pitch Diameter of Pinion	1.000 in.	25.4 mm
Weight without rotational adjuster	5.4 lbs.	2.4 kg
Weight without rotational adjuster (-R option)	5.6 lbs.	2.5 kg
Pressure Range	40-100 psi	3-7 bar
Bore	1.313 in.	33.4 mm
Displacement (180°)	2.11 in^3.	34.6 cm^3
Actuation Time (180° @ 100psi/7 bar)	0.87 sec.	0.87 sec.
Actuation Time (90° @ 100psi/7 bar)	0.68 sec.	0.68 sec.
Temperature Range: Standard Seals	-30°~180° F	-35°~82° C
End Stop Adjustability (-R option)	23°	23°
Over Travel (each end)	1° to 3°	1° to 3°
Valve required to actuate	4-way, 2-position	



Loading Capacity	Static	Dynamic
Maximum Tensile **T**	50 lbs. [222 N]	10 lbs. [44 N]
Maximum Compressive **C**	100 lbs. [445 N]	20 lbs. [89 N]
Maximum Moment $\mathbf{M_x}$	100 in-lbs. [11.3 Nm]	20 in-lbs. [2.5 Nm]
Maximum Moment $\mathbf{M_y}$	100 in-lbs. [11.3 Nm]	20 in-lbs. [2.5 Nm]
Maximum Payload **W**		7.5 lbs. [3.4 kg]
Maximum Inertia **J**		0.0485 in-lbs.-sec.^{2} [5.5 X 10^{-3} N-m-sec.^{2}]

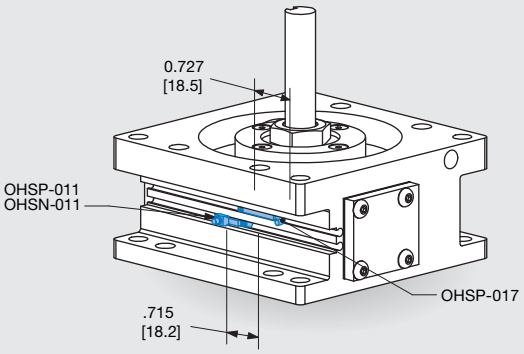
Note: Higher payloads and inertia possible with external shocks and stops.

Accessory Mounting Technical Data



Flow Controls

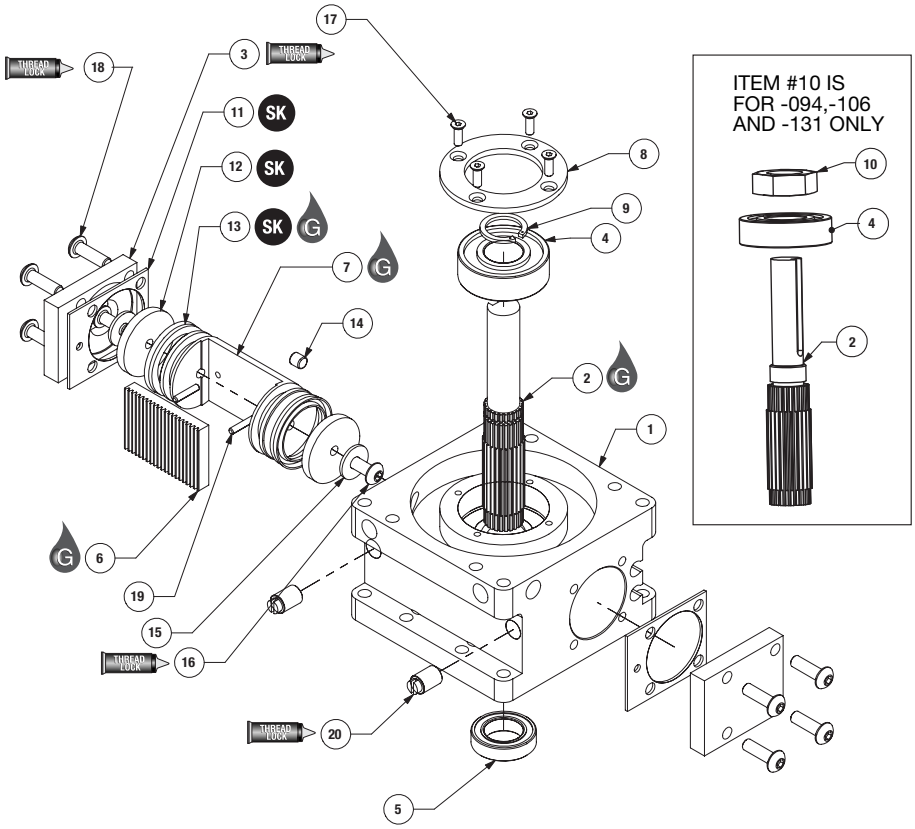
- Flow controls for adjusting rotational speed

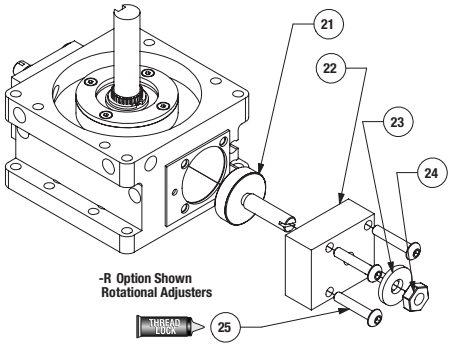


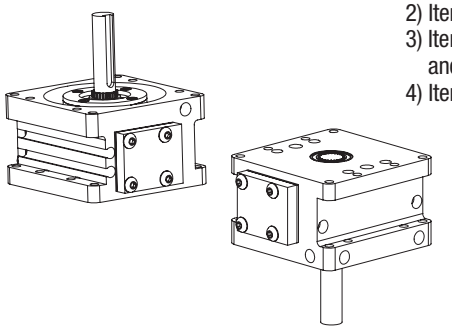
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)
- Sensor Magnet standard

DRG SERIES EXPLODED VIEW







Item	Qty	Name
01	1	Body
02	1	Pinion Shaft
03	2	End Plate
04	1	Upper Bearing
05	1	Lower Bearing
06	1	Rack
07	1	Piston
08*	1	Bearing Retainer
09*	1	Retaining Ring
10	1	Hex Nut
11	2	Gasket
12	2	Bumper
13	2	U-cup
14	1	Magnet
15	2	Bumper Washer
16	2	Bumper Screw
17	4	Retainer Screw
18	8	End Plate Screw
19	2	Roll Pin
20*	2	Fixed Orifice
21	2	Angle Adjuster
22	2	End Plate Rotational Adjuster
23	2	Seal Washer
24	2	Hex Nut
25	8	End Plate Rotational Adj. Screw

***NOTES:**

1) Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.
2) Item #09 is for size -075 only.
3) Item #10 is for size -094, -106 and -131 respectively.
4) Item #20 not in size -131

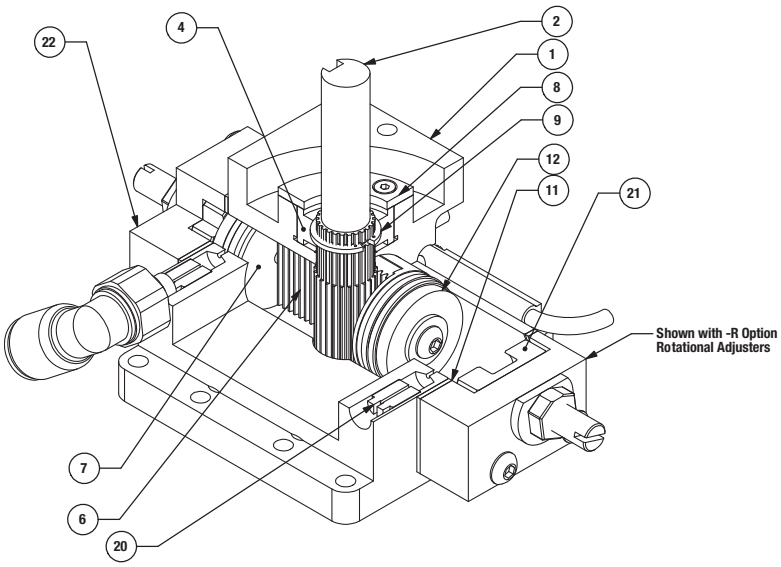
Assembly Procedure

1) Press the Upper Bearing #4 onto the Pinion #2.
2) Install the Retaining Ring#9 or Hex Nut #10 onto the Pinion #2.
3) Assemble the Rack #6 to the Piston #7 with Roll Pins #19.
4) Grease the U-Cups #13 and install them onto the Piston #7.
5) Press the Magnet #14 into the Piston #7.
6) Assemble the Bumper #12, Washers #15 and Bumper Screw #16 onto the Piston #7.
7) Lubricate the Body #1 bore and install the Piston Assembly into the body.
8) Press the Lower Bearing #5 into the Body #1.
9) Locate the Piston assembly so it is aligned with an outer edge of the body.
10) Lubricate the Pinion assembly and align the key with the same edge of the Body as the Piston and Press the Pinion into the Body.
11) Rotate the Pinion through the full travel and insure that the Piston is correctly located in the Body, adjust the travel of the Piston if necessary.
12) Grease the Gasket and install the End Plate #3 onto the Body #1.
13) Install the 2 Orifice #20 into the Body #1 screw them in until they bottom.
14) Install the Bearing Flange #8 with the 4 Flange Screws #17.

-R Option Assembly Procedure:

1) Screw the Angle Adjuster into the End Block Angle Adjuster.
2) Place the sealing washer over the threaded extension.
3) Screw on the Hex Nut over the Sealing Washer.
4) Screw the End Block onto the Body with a Gasket.

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX™ Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon™ Based Grease | GLUE Super Bonder | Third Angle Projection



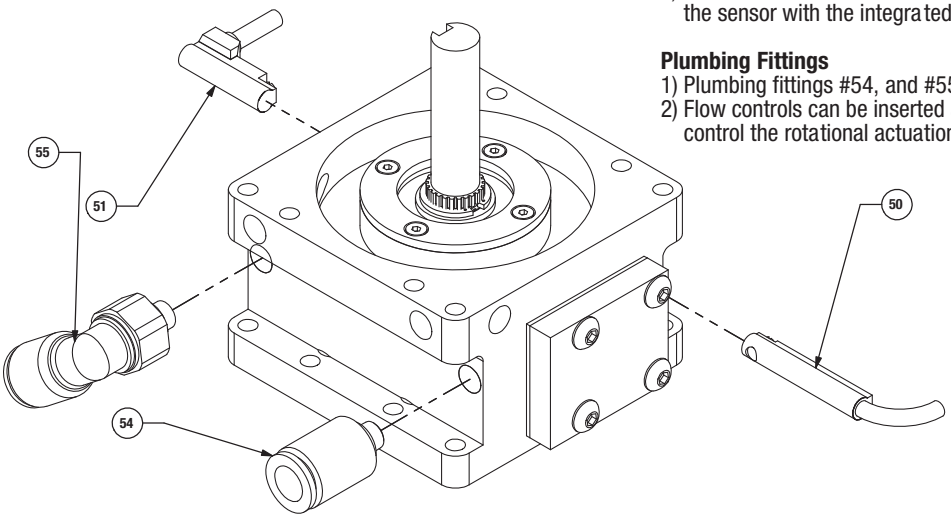
Item	Qty	Name
01	1	Body
02	1	Pinion Shaft
04	1	Upper Bearing
06	1	Rack
07	1	Piston
08*	1	Bearing Retainer
09*	1	Retaining Ring
11	2	Gasket
12	2	Bumper
20	2	Fixed Orifice
21	2	Angle Adjuster
22	2	End Plate Rotational Adjuster

***NOTES:**
1) Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.
2) Item #09 is for size -075 only.

Warning: Removal of Orifices will void warranty.

Accessory Installation & Adjustment Instructions

Item	Qty	Name
50	1 or 2	Magneto Resistive Sensor with Quick Disconnect
51	1 or 2	Magneto Resistive Sensor (90° barrel) with Quick Disconnect
54	1 or 2	Fitting Push-in Straight 1/8 NPT, 1/4" O.D. Tube (-131 Only)
55	1 or 2	Fitting Push-in 90° Elbow 1/8 NPT, 1/4" O.D. Tube (-131 Only)

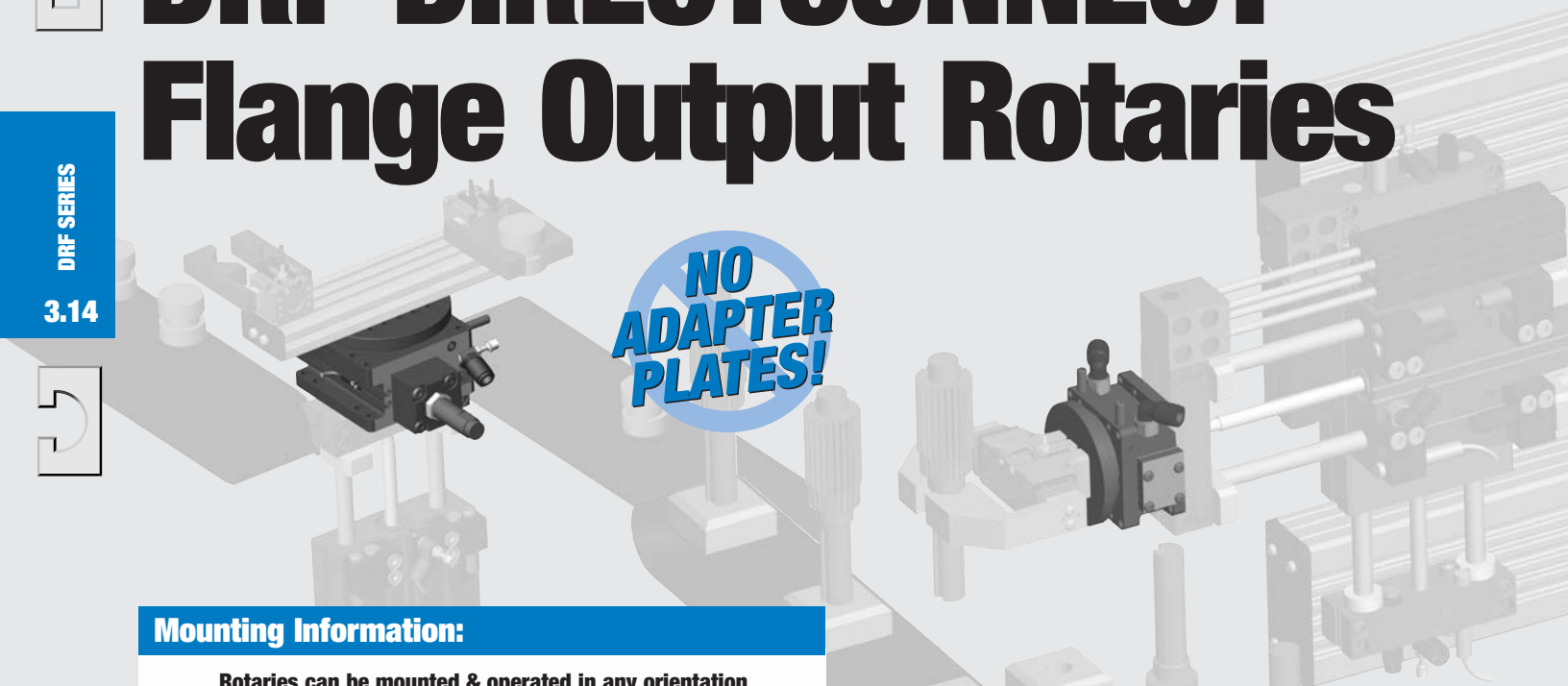


Magneto Resistive Sensors
1) Insert sensors #50 or #51 from either end of the profile slots and set the sensor with the integrated slotted screw set.

Plumbing Fittings
1) Plumbing fittings #54, and #55 can be used in an y airport
2) Flow controls can be inserted and used in an y airport to help control the rotational actuation

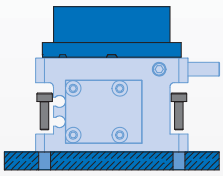
SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX™ Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon™ Based Grease | GLUE Super Bonder | Third Angle Projection

Rotary Actuator - DRF DIRECTCONNECT Flange Output Rotaries

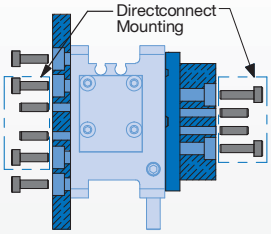


Mounting Information:

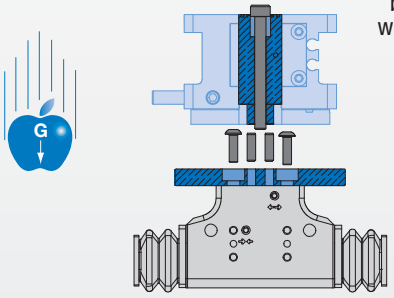
Rotaries can be mounted & operated in any orientation



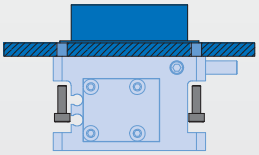
Mounting thru bottom flange clearance holes into tapped holes in customer application.



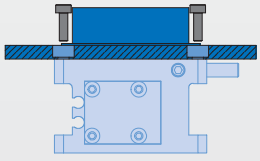
Body mounts with screws and slip fit dowels from bottom. Payload is attached with screw and slip fit dowels.



DIRECTCONNECT Mounting: Gripper is mounted from the under side of Turntable with Button Head screws and slip fit dowels. Turntable is then mounted to rotary with one screw thru the center of the pinion and two slip fit dowel pins.



Mounting thru top flange clearance holes into tapped holes in customer application.



Top mounting from underside of table using tapped holes in body top flange.

Application: Use in applications where precision end stop position and zero backlash are required.

Multiple Mounting Locations: Tapped and thru flange on top and bottom mounting surfaces, DIRECTCONNECT tapped pattern on bottom flange.

Turntable: Has DIRECTCONNECT mounting pattern.

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

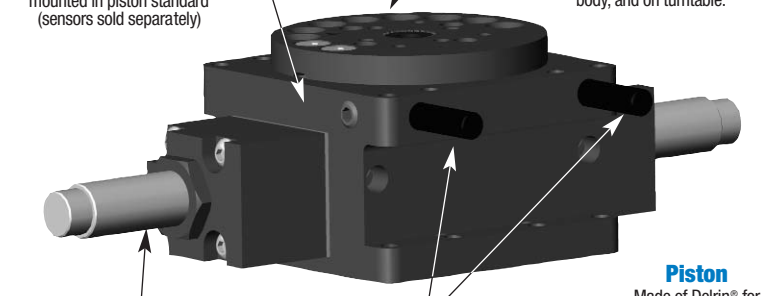
Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
with shocks	**32°~150° F**	**0°~66° C**

Maintenance Specifications	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

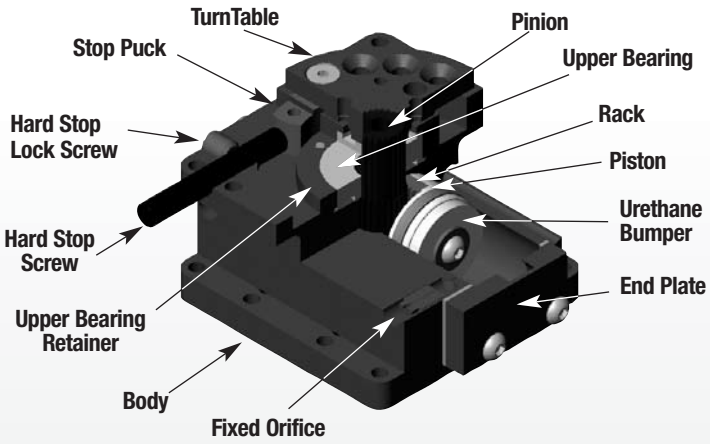
*Addition of lubrication will greatly increase service life

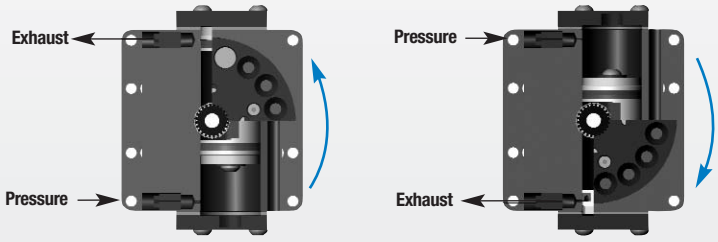
DIRECTCONNECT™

Product Features



Operating Principle





- Air pressure supplied to one port causing the piston/rack to move.
- The rack drives the pinion which is mounted to the output flange and by two sealed ball bearings.
- The turntable has a stop puck mounted on its underside which hits the hard stop screw at end of stroke.

Designed and manufactured in the USA

Style - DRF Rotary Actuator

Size -075M

Style:	DRF-075M	
Max. Payload:*	1 lbs.	0.45 kg
Torque:	8 in-lbs.	0.9 N-m
Weight:	0.54 lbs.	0.24 Kg

*Max. payload based on **-A** shock option.

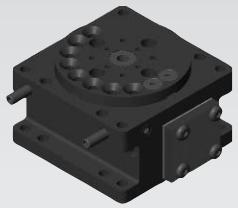
See Page **3.16**

Style - DRF Rotary Actuator

Size -094M

Style:	DRF-094M	
Max. Payload:*	3 lbs.	1.4 kg
Torque:	17 in-lbs.	1.9 N-m
Weight:	1.1 lbs.	0.50 Kg

*Max. payload based on **-A** shock option.



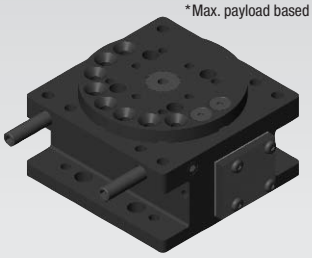
See Page **3.18**

Style - DRF Rotary Actuator

Size -106M

Style:	DRF-106M	
Max. Payload:*	8 lbs.	3.6 kg
Torque:	33 in-lbs.	3.8 N-m
Weight:	2.5 lbs.	1.1 Kg

*Max. payload based on **-A** shock option.



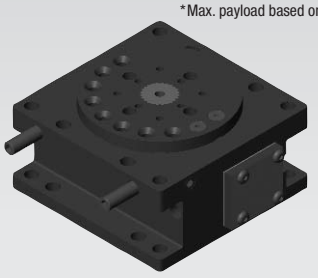
See Page **3.20**

Style - DRF Rotary Actuator

Size -131M

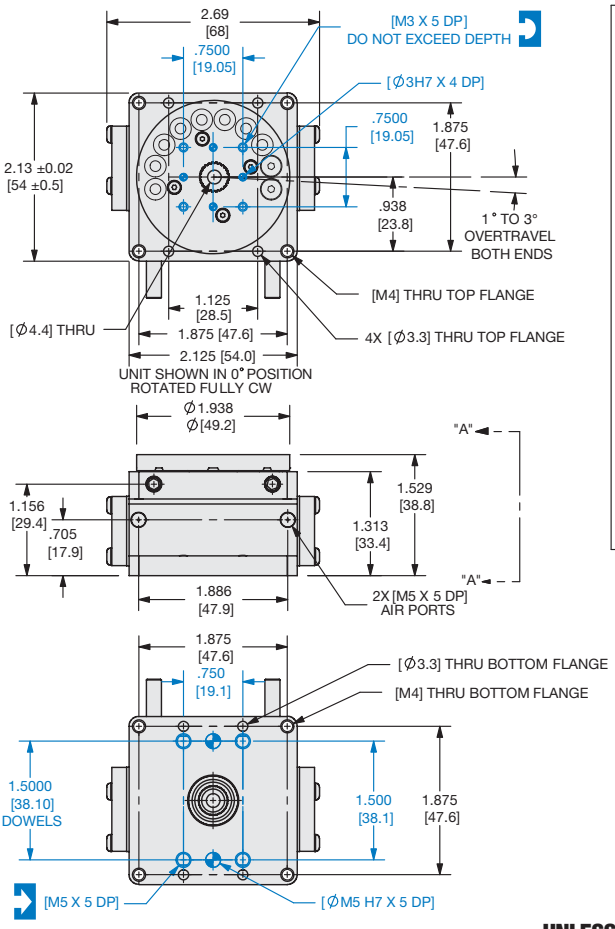
Style:	DRF-131M	
Max. Payload:*	15 lbs.	6.8 kg
Torque:	68 in-lbs.	7.6 N-m
Weight:	6.3 lbs.	2.9 Kg

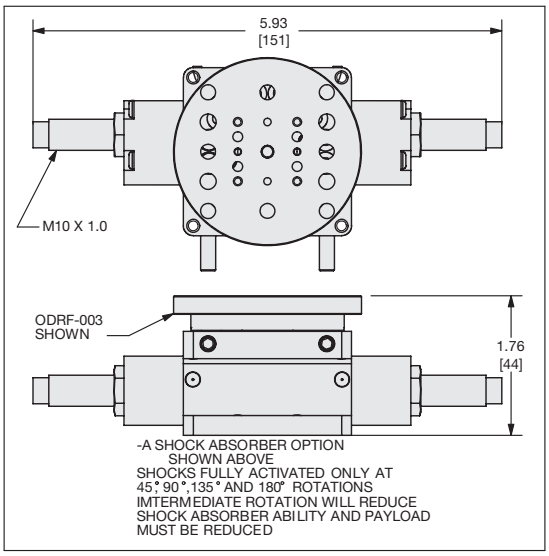
*Max. payload based on **-A** shock option.

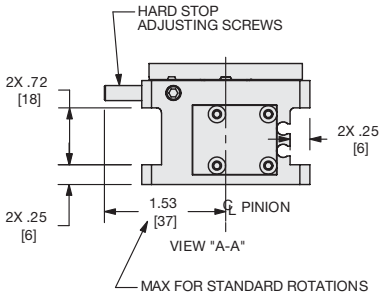


See Page **3.22**

ROTARY ACTUATOR DRF-075M
FLANGED SERIES







NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — ROTATION

DRF-075M - [ ] - A

SHOCK ABSORBERS

DEGREES OF ROTATION: 45°, 90°, 135°,180°
(Consult factory for intermediate degrees of rotation)

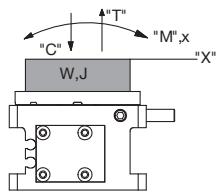
ROTARY ACCESSORIES	ORDER #	QTY/UNIT
Turntable Blank, Metric	ODRF-002	1
DIRECTCONNECT Turntable	ODRF-003	1
SENSOR ACCESSORIES	**ORDER #**	**QTY/UNIT**
Magneto Resistive Sensor (PNP)*	OHSP-017	1 or 2
Magneto Resistive Sensor (NPN)*	OHSN-017	1 or 2
Magneto Resistive Sensor 90° Barrel (PNP)*	OHSP-011	1 or 2
Magneto Resistive Sensor 90° Barrel (NPN)*	OHSN-011	1 or 2
Quick Disconnect Cable (2 meters long)*	CABL-010	1 or 2
Quick Disconnect Cable (5 meters long)*	CABL-013	1 or 2
PNEUMATIC ACCESSORIES	**ORDER #**	**QTY/UNIT**
Seal Repair Kit (Standard Buna-N)	SLKT-210	1
Shock Seal Repair Kit	SLKT-214	1
Flow Control Push-in 90° Elbow M5-6mm O.D. Tube**	VLVF-008	1 or 2

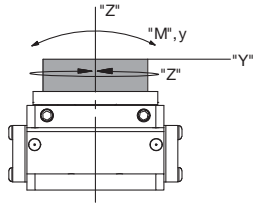
*Sensor and cable sold separately
**Flow Controls recommended for most applications

SAMPLE ORDER: DRF-075M-180-A
Ex: DRF Rotary, size 075, metric, 180° rotation with Shock Absorbers

Specifications

	DRF-075M	
Maximum Payload with shocks (-A)	1 lbs.	0.45 kg
Maximum Payload without shocks	0.5 lbs.	0.23 kg
Maximum Payload Inertia with shocks (-A)	0.0016 in-lbs.-sec.^{2}	1.8 X10^{-4}N-m-sec.^{2}
Maximum Payload Inertia without shocks	0.0008 in-lbs.-sec.^{2}	9.0 X10^{-5}N-m-sec.^{2}
Maximum Torque @ 100psi/7 bar	8.3 lbs.-in.	0.9 N-m
Maximum Rotation	180°	180°
Pitch Diameter of Pinion	0.375 in.	9.5 mm
Weight with shocks (-A Option)	0.72 lbs.	0.34 kg
Weight without shocks	0.54 lbs.	0.24 kg
Pressure Range	40-100 psi	3-7 bar
Bore	0.750 in.	19.1 mm
Displacement (180°)	0.31 in^3.	5.1 cm^3
Actuation Time (180° @ 100psi/7 bar)	0.38 sec.	0.38 sec.
Actuation Time (90° @ 100psi/7 bar)	0.29 sec.	0.29 sec.
Over Travel (each end)	1° to 3°	1° to 3°
Temperature Range without Shocks	-30°~180° F	-35°~82° C
Temperature Range with Shocks (-A)	32°~150° F	0°~66° C
End Stop Adjustability (each end)	23°	23°
Repeatability	±0.02°	±0.02°
Valve required to actuate	4-way, 2-position	



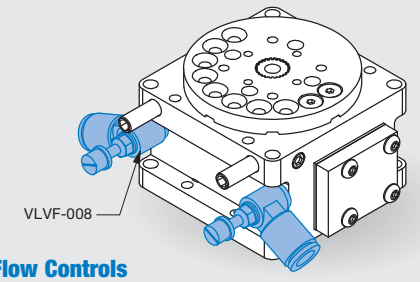


Loading Capacity

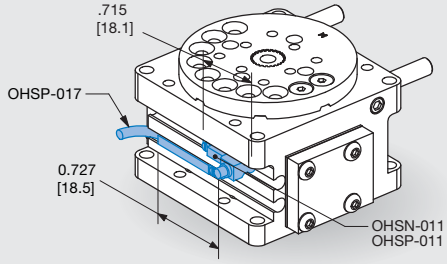
	Static	Dynamic
Maximum Tensile **T**	10 lbs. [44 N]	2 lbs. [9 N]
Maximum Compressive **C**	20 lbs. [89 N]	4 lbs. [18 N]
Maximum Moment **M_x**	20 in-lbs. [2.3 Nm]	4 in-lbs. [0.5 Nm]
Maximum Moment **M_y**	20 in-lbs. [2.3 Nm]	4 in-lbs. [0.5 Nm]
Maximum Payload **W (with shocks)**		1.0 lbs. [0.45 kg]
Maximum Inertia **J (with shocks)**		0.0016 in-lbs.-sec.^{2} (1.8 X 10^{-4} N-m-sec.^{2})

Note: Higher payloads and inertia possible with external shocks and stops.

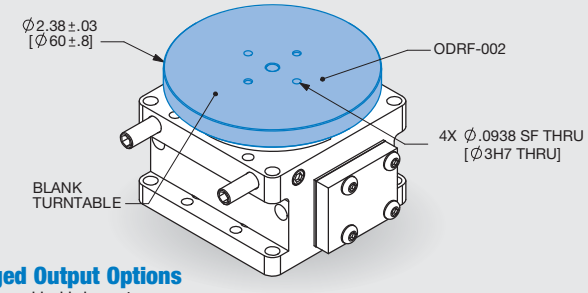
Accessory Mounting Technical Data



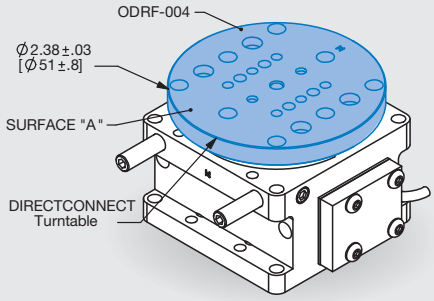
Flow Controls
- Flow controls for adjusting rotational speed



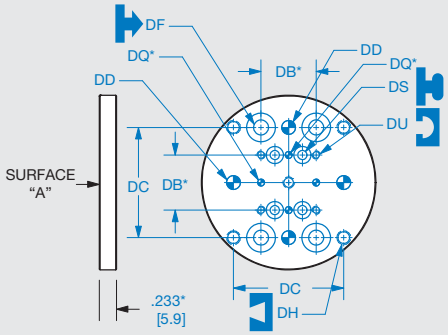
Sensors
- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)
- Sensor Magnet standard



Flanged Output Options
- Easily machinable by customer
- Blank Turntable, easily removed, pin located
- High quality aircraft aluminum, Black anodize finish
- Mounts through pinion with one screw & two do wels



Flanged Output DIRECTCONNECT Turntable
- DIRECTCONNECT Turntable, easily removed, pin located
- High quality aircraft aluminum, Black anodize finish
- Mounts through pinion with one screw & two do wels
- No machining required, DIRECTCONNECT Grippers mount directly
- 90° orientations

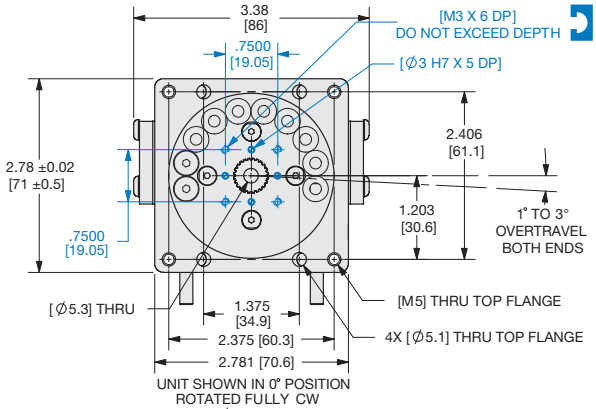


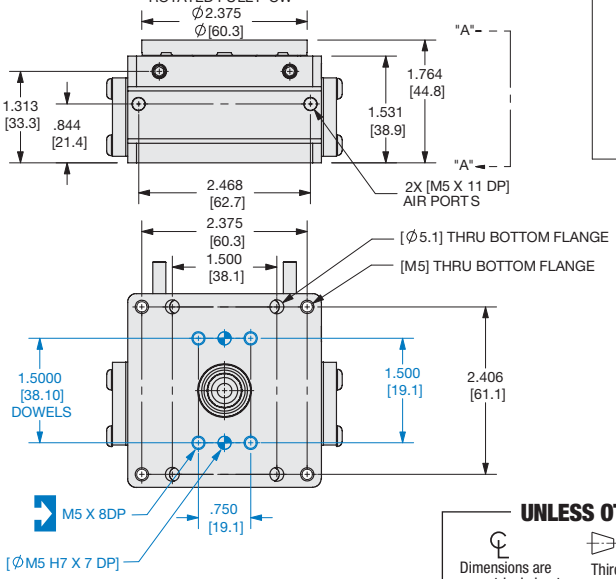
* DIMENSIONS ALSO APPLY TO BLANK TURNTABLE C'BORE FOR BUTTON HEAD SCREWS

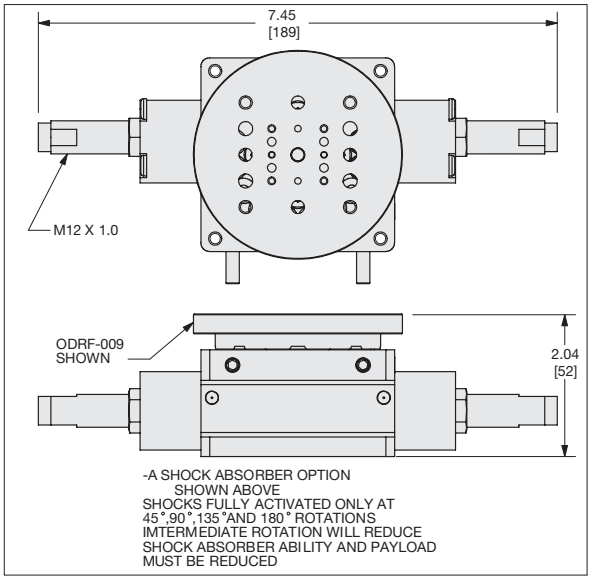
DIRECTCONNECT DIMENSIONS
STANDARD MOUNTING PATTERN FOR ALL SIZES

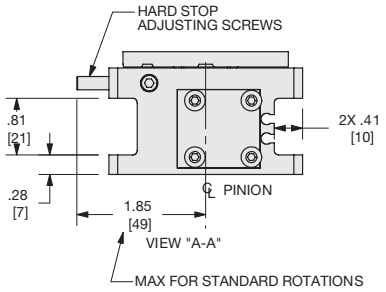
	Imperial (inches)	Metric (mm)
DA	.375	9.5
DB	.750	19.1
DC	1.500	38.1
DD		5 mm THRU
DF		C'bore for M5 Button head screws
DH		M5 THRU
DQ		3 H7 THRU
DS		C'bored for M3 Button head screws
DU		M3 THRU

ROTARY ACTUATOR DRF-094M
FLANGED SERIES









NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — ROTATION

DRF-094M - [ ] - [A]

SHOCK ABSORBERS

DEGREES OF ROTATION: 45°, 90°, 135°,180°
(Consult factory for intermediate degrees of rotation)

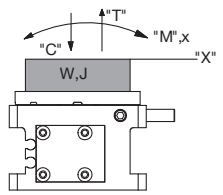
ROTARY ACCESSORIES	ORDER #	QTY/UNIT
Turntable Blank, Metric	ODRF-008	1
DIRECTCONNECT Turntable, Metric	ODRF-010	1
SENSOR ACCESSORIES	**ORDER #**	**QTY/UNIT**
Magneto Resistive Sensor (PNP)*	OHSP-017	1 or 2
Magneto Resistive Sensor (NPN)*	OHSN-017	1 or 2
Magneto Resistive Sensor 90° Barrel (PNP)*	OHSP-011	1 or 2
Magneto Resistive Sensor 90° Barrel (NPN)*	OHSN-011	1 or 2
Quick Disconnect Cable (2 meters long)*	CABL-010	1 or 2
Quick Disconnect Cable (5 meters long)*	CABL-013	1 or 2
PNEUMATIC ACCESSORIES	**ORDER #**	**QTY/UNIT**
Seal Repair Kit (Standard Buna-N)	SLKT-216	1
Shock Seal Repair Kit	SLKT-219	1
Flow Control Push-in 90° Elbow M5-6mm O.D. Tube**	VLVF-008	1 or 2

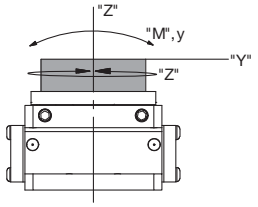
*Sensor and cable sold separately
**Flow Controls recommended for most applications

SAMPLE ORDER: DRF-094M-180-A
Ex: DRF Rotary, size 094, metric, 180° rotation with Shock Absorbers

DIRECTCONNECT™

Specifications	DRF-094M	
Maximum Payload with shocks (-A)	3 lbs.	1.4 kg
Maximum Payload without shocks	1.5 lbs.	0.68 kg
Maximum Payload Inertia with shocks (-A)	0.0111 in-lbs.-sec.^{2}	1.3 X10^{-3} N-m-sec.^{2}
Maximum Payload Inertia without shocks	0.0056 in-lbs.-sec.^{2}	6.3 X10^{-4} N-m-sec.^{2}
Maximum Torque @ 100psi/7 bar	17.3 lbs.-in.	1.9 N-m
Maximum Rotation	180°	180°
Pitch Diameter of Pinion	0.500 in.	12.7 mm
Weight with shocks (-A Option)	1.4 lbs.	0.64 kg
Weight without shocks	1.1 lbs.	0.50 kg
Pressure Range	40-100 psi	3-7 bar
Bore	0.938 in.	23.8 mm
Displacement (180°)	0.55 in^3.	9.0 cm^3
Actuation Time (180° @ 100psi/7 bar)	0.38 sec.	0.38 sec.
Actuation Time (90° @ 100psi/7 bar)	0.29 sec.	0.29 sec.
Over Travel (each end)	1° to 3°	1° to 3°
Temperature Range without Shocks	-30°~180° F	-35°~82° C
Temperature Range with Shocks (-A)	32°~150° F	0°~66° C
End Stop Adjustability (each end)	23°	23°
Repeatability	±0.02°	±0.02°
Valve required to actuate	4-way, 2-position	

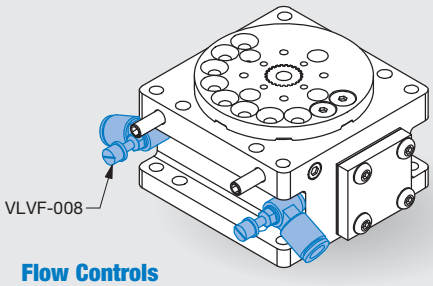




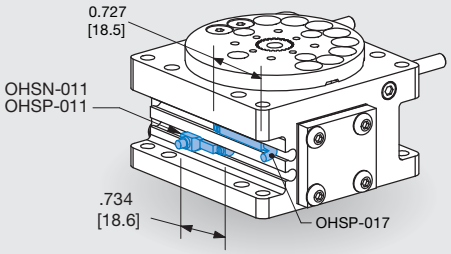
Loading Capacity	Static	Dynamic
Maximum Tensile **T**	15 lbs. [67 N]	3 lbs. [13 N]
Maximum Compressive **C**	30 lbs. [133 N]	6 lbs. [27 N]
Maximum Moment **M_x**	50 in-lbs. [5.6 Nm]	10 in-lbs. [1.1 Nm]
Maximum Moment **M_y**	50 in-lbs. [5.6 Nm]	10 in-lbs. [1.1 Nm]
Maximum Payload **W (with shocks)**		3 lbs. [1.4 kg]
Maximum Inertia **J (with shocks)**		0.0111 in-lbs.-sec.^{2} (1.3 X 10^{-3} N-m-sec.^{2})

Note: Higher payloads and inertia possible with external shocks and stops.

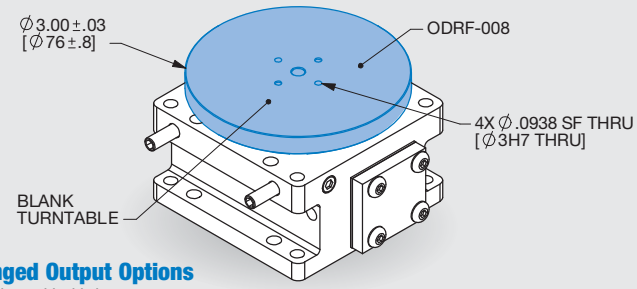
Accessory Mounting Technical Data



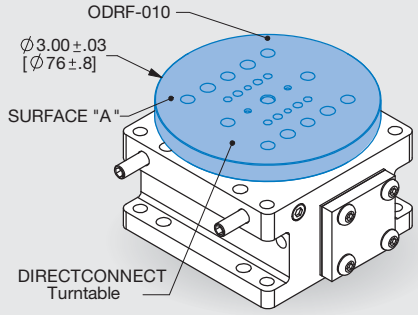
Flow Controls
- Flow controls for adjusting rotational speed



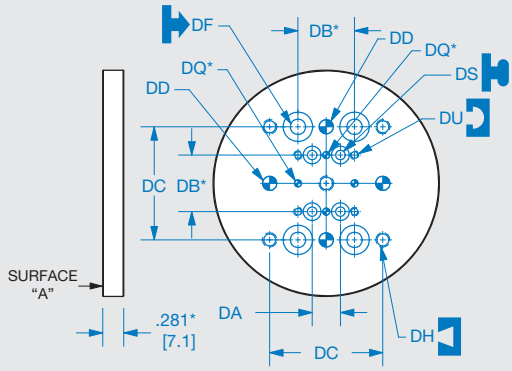
Sensors
- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)
- Sensor Magnet standard



Flanged Output Options
- Easily machinable by customer
- Blank Turntable, easily removed, pin located
- High quality aircraft aluminum, Black anodize finish
- Mounts through pinion with one screw & two do wels



Flanged Output DIRECTCONNECT Turntable
- DIRECTCONNECT Turntable, easily removed, pin located
- High quality aircraft aluminum, Black anodize finish
- Mounts through pinion with one screw & two do wels
- No machining required, DIRECTCONNECT Grippers mount directly
- 90° orientations

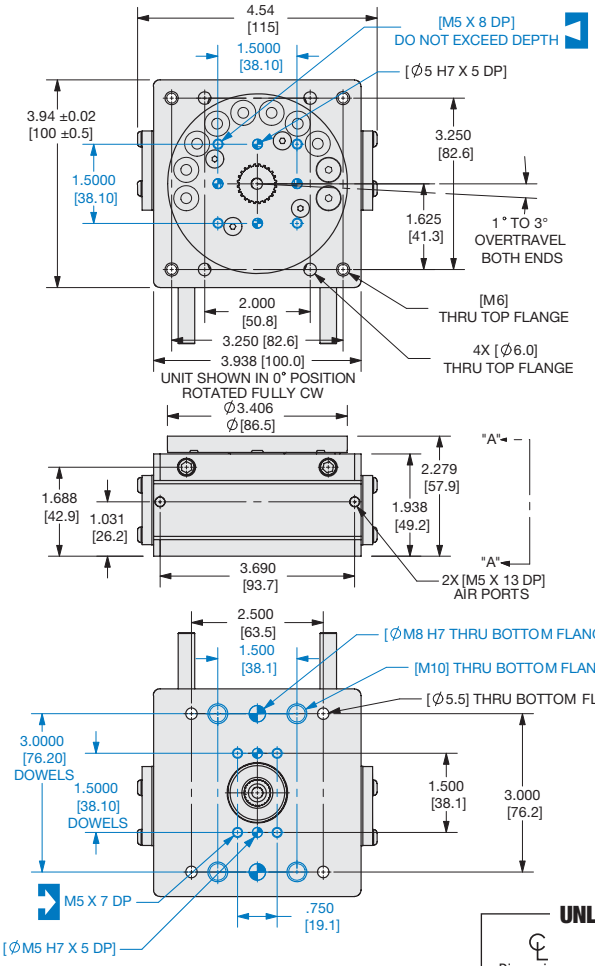


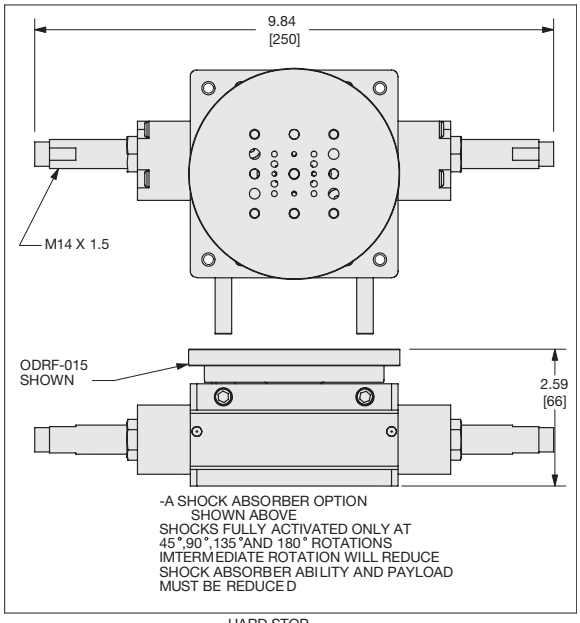
* DIMENSIONS ALSO APPLY TO BLANK TURNTABLE
C'BORE FOR BUTTON HEAD SCREWS

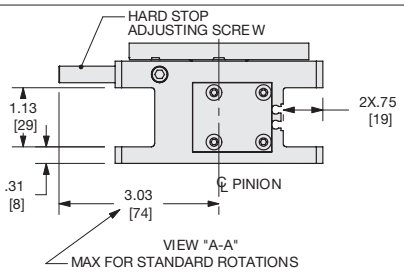
DIRECTCONNECT DIMENSIONS
STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DA	.375	9.5
DB	.750	19.1
DC	1.500	38.1
DD		5 mm THRU
DF		C'bore for M5 Button head screws
DH		M5 THRU
DQ		3 H7 THRU
DS		C'bored for M3 Button head screws
DU		M3 THRU

ROTARY ACTUATOR DRF-106M
FLANGED SERIES







NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — ROTATION

DRF-106M - [ ] - A

SHOCK ABSORBERS

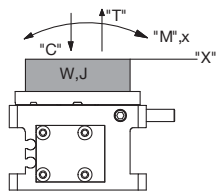
DEGREES OF ROTATION: 45°, 90°, 135°,180°
(Consult factory for intermediate degrees of rotation)

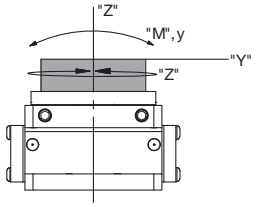
ROTARY ACCESSORIES	ORDER #	QTY/UNIT
Turntable Blank, Metric	ODRF-014	1
DIRECTCONNECT Turntable, Metric	ODRF-016	1
SENSOR ACCESSORIES	**ORDER #**	**QTY/UNIT**
Magneto Resistive Sensor (PNP)*	OHSP-017	1 or 2
Magneto Resistive Sensor (NPN)*	OHSN-017	1 or 2
Magneto Resistive Sensor Short Barrel (PNP)*	OHSP-017	1 or 2
Magneto Resistive Sensor Short Barrel (NPN)*	OHSN-017	1 or 2
Magneto Resistive Sensor 90° Barrel (PNP)*	OHSP-011	1 or 2
Magneto Resistive Sensor 90° Barrel (NPN)*	OHSN-011	1 or 2
Quick Disconnect Cable (2 meters long)*	CABL-010	1 or 2
Quick Disconnect Cable (5 meters long)*	CABL-013	1 or 2
PNEUMATIC ACCESSORIES	**ORDER #**	**QTY/UNIT**
Seal Repair Kit (Standard Buna-N)	SLKT-222	1
Shock Seal Repair Kit	SLKT-225	1
Flow Control Push-in 90° Elbow M5-6mm O.D. Tube**	VLVF-008	1 or 2

*Sensor and cable sold separately
**Flow Controls recommended for most applications

SAMPLE ORDER: DRF-106M-180-A
Ex: DRF Rotary, size 106, metric, 180° rotation with Shock Absorbers

Specifications	DRF-106M	
Maximum Payload with shocks (-A)	8 lbs.	3.6 kg
Maximum Payload without shocks	4 lbs.	1.8 kg
Maximum Payload Inertia with shocks (-A)	0.0414 in-lbs.-sec.^{2}	4.7 X10^{-3} N-m-sec.^{2}
Maximum Payload Inertia without shocks	0.0207 in-lbs.-sec.^{2}	2.3 X10^{-3} N-m-sec.^{2}
Maximum Torque @ 100psi/7 bar	33.2 lbs.-in.	3.8 N-m
Maximum Rotation	180°	180°
Pitch Diameter of Pinion	0.750 in.	19.1 mm
Weight with shocks (-A Option)	3.1 lbs.	1.4 kg
Weight without shocks	2.5 lbs.	1.1 kg
Pressure Range	40-100 psi	3-7 bar
Bore	1.063 in.	27.0 mm
Displacement (180°)	1.16 in^3.	19.0 cm^3
Actuation Time (180° @ 100psi/7 bar)	0.60 sec.	0.60 sec.
Actuation Time (90° @ 100psi/7 bar)	0.45 sec.	0.45 sec.
Over Travel (each end)	1° to 3°	1° to 3°
Temperature Range without Shocks	-30°~180° F	-35°~82° C
Temperature Range with Shocks (-A)	32°~150° F	0°~66° C
End Stop Adjustability (each end)	23°	23°
Repeatability	±0.02°	±0.02°
Valve required to actuate	4-way, 2-position	

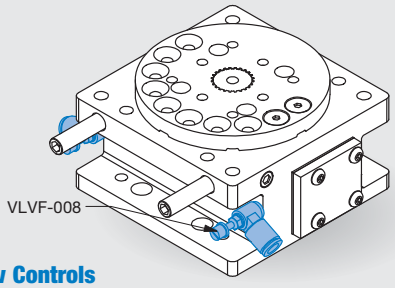




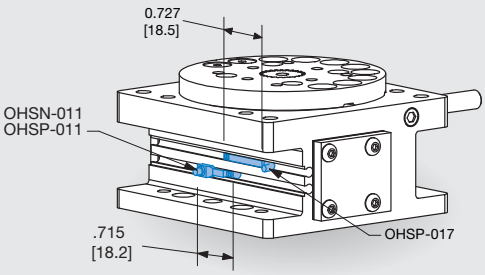
Loading Capacity	Static	Dynamic
Maximum Tensile **T**	25 lbs. [111 N]	5 lbs. [22 N]
Maximum Compressive **C**	50 lbs. [89 N]	10 lbs. [44 N]
Maximum Moment **M_X**	75 in-lbs. [8.5 Nm]	15 in-lbs. [1.7 Nm]
Maximum Moment **M_Y**	75 in-lbs. [8.5 Nm]	15 in-lbs. [1.7 Nm]
Maximum Payload **W (with shocks)**		8 lbs. [3.6 kg]
Maximum Inertia **J (with shocks)**		0.0414 in-lbs.-sec.^{2} (4.7 X 10^{-3} N-m-sec.^{2})

Note: Higher payloads and inertia possible with external shocks and stops.

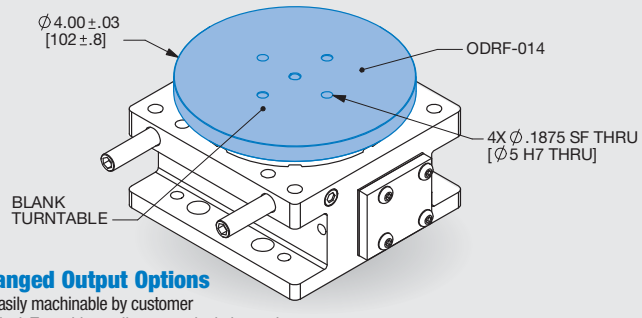
Accessory Mounting Technical Data



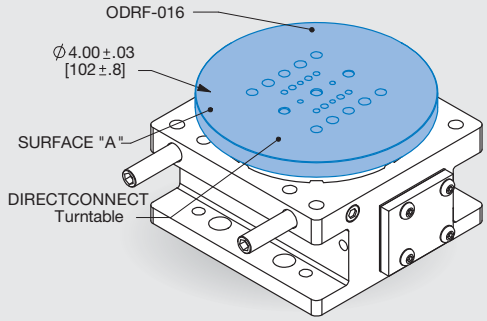
Flow Controls
- Flow controls for adjusting rotational speed



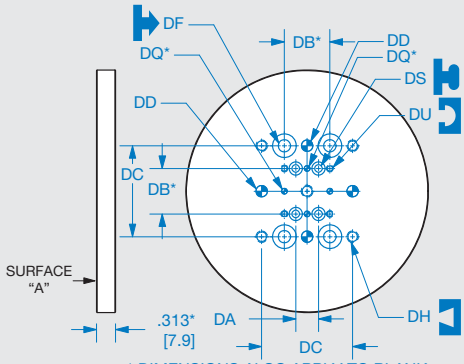
Sensors
- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)
- Sensor Magnet standard



Flanged Output Options
- Easily machinable by customer
- Blank Turntable, easily removed, pin located
- High quality aircraft aluminum, Black anodize finish
- Mounts through pinion with one screw & two do wels



Flanged Output DIRECTCONNECT Turntable
- DIRECTCONNECT Turntable, easily removed, pin located
- High quality aircraft aluminum, Black anodize finish
- Mounts through pinion with one screw & two do wels
- No machining required, DIRECTCONNECT Grippers mount directly
- 90° orientations

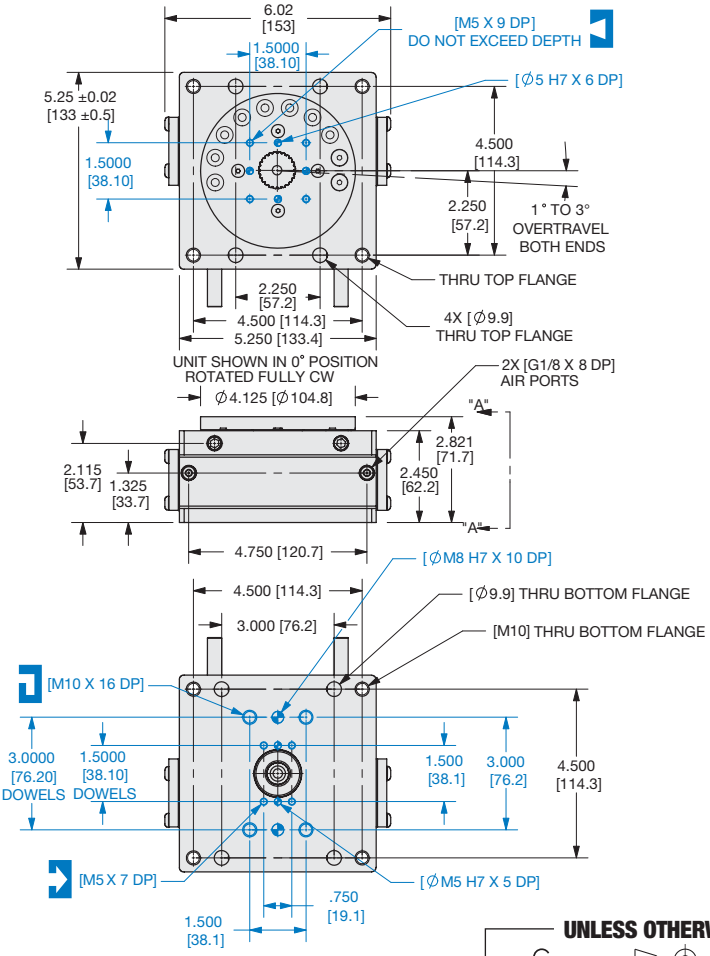


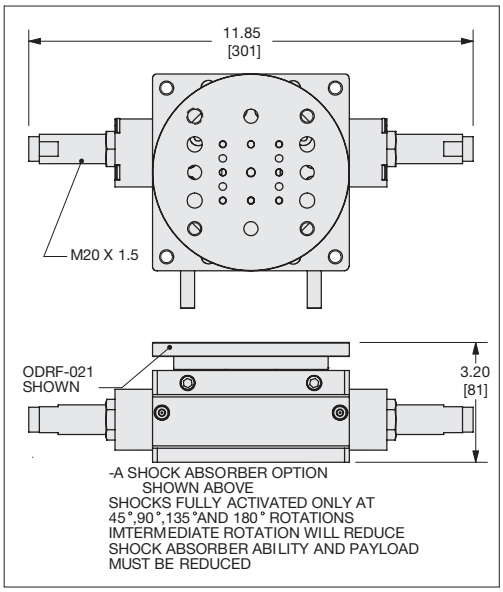
* DIMENSIONS ALSO APPLY TO BLANK TURNTABLE C'BORE"S FOR BUTTON HEAD SCREWS

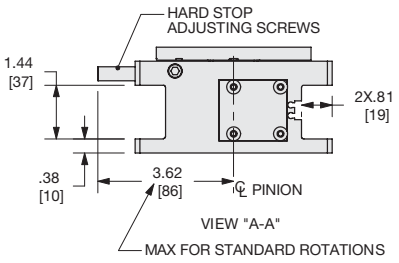
DIRECTCONNECT DIMENSIONS
STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DA	.375	9.5
DB	.750	19.1
DC	1.500	38.1
DD		5 mm THRU
DF		C'bore for M5 Button head screws
DH		M5 THRU
DQ		3 H7 THRU
DS		C'bored for M3 Button head screws
DU		M3 THRU

ROTARY ACTUATOR DRF-131M
FLANGED SERIES







NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — ROTATION

DRF-131M - [ ] **-** [A]

SHOCK ABSORBERS

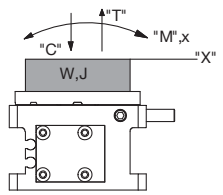
DEGREES OF ROTATION: 45°, 90°, 135°,180°
(Consult factory for intermediate degrees of rotation)

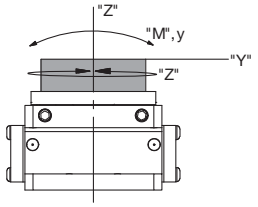
ROTARY ACCESSORIES	ORDER #	QTY/UNIT
Turntable Blank, Metric	ODRF-020	1
DIRECTCONNECT Turntable, Metric	ODRF-022	1
SENSOR ACCESSORIES	**ORDER #**	**QTY/UNIT**
Magneto Resistive Sensor (PNP)*	OHSP-017	1 or 2
Magneto Resistive Sensor (NPN)*	OHSN-017	1 or 2
Magneto Resistive Sensor 90° Barrel (PNP)*	OHSP-011	1 or 2
Magneto Resistive Sensor 90° Barrel (NPN)*	OHSN-011	1 or 2
Quick Disconnect Cable (2 meters long)*	CABL-010	1 or 2
Quick Disconnect Cable (5 meters long)*	CABL-013	1 or 2
PNEUMATIC ACCESSORIES	**ORDER #**	**QTY/UNIT**
Seal Repair Kit (Standard Buna-N)	SLKT-228	1
Shock Seal Repair Kit	SLKT-232	1
Fitting Push-in Straight G1/8-6mm O.D. Tube	PLFT-038	1 or 2
Fitting Push-in Straight G1/8-8mm O.D. Tube	PLFT-045	1 or 2
Flow Control Push-in 90° Elbow G1/8, 6MM O.D. Tube**	VLVF-005	1 or 2

*Sensor and cable sold separately
**Flow Controls recommended for most applications

SAMPLE ORDER: DRF-131M-180-A
Ex: DRF Rotary, size 131, metric, 180° rotation with Shock Absorbers

Specifications	DRF-131M	
Maximum Payload with shocks (-A)	15 lbs.	6.8 kg
Maximum Payload without shocks	7.5 lbs.	3.4 kg
Maximum Payload Inertia with shocks (-A)	0.0970 in-lbs.-sec.^{2}	1.1 X10^{-2} N-m-sec.^{2}
Maximum Payload Inertia without shocks	0.0485 in-lbs.-sec.^{2}	5.5 X10^{-3} N-m-sec.^{2}
Maximum Torque @ 100psi/7 bar	67.6 lbs-in.	7.6 N-m
Maximum Rotation	180°	180°
Pitch Diameter of Pinion	1.000 in.	25.4 mm
Weight with shocks (-A Option)	6.8 lbs.	3.1kg
Weight without shocks	6.3 lbs.	2.9 kg
Pressure Range	40-100 psi	3-7 bar
Bore	1.313 in.	33.4 mm
Displacement (180°)	2.11 in^3.	34.6 cm^3
Actuation Time (180° @ 100psi/7 bar)	0.87 sec.	0.87 sec.
Actuation Time (90° @ 100psi/7 bar)	0.68 sec.	0.68 sec.
Over Travel (each end)	1° to 3°	1° to 3°
Temperature Range without Shocks	-30°~180° F	-35°~82° C
Temperature Range with Shocks (-A)	32°~150° F	0°~66° C
End Stop Adjustability (each end)	23°	23°
Repeatability	±0.02°	±0.02°
Valve required to actuate	4-way, 2-position	

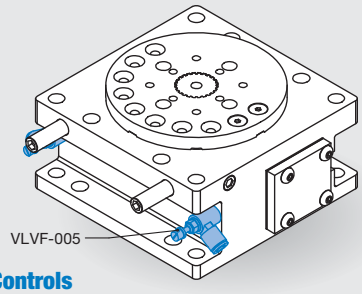




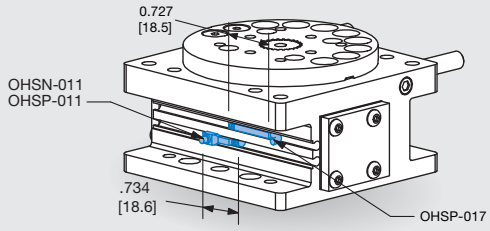
Loading Capacity	Static	Dynamic
Maximum Tensile **T**	50 lbs. [222 N]	10 lbs. [44 N]
Maximum Compressive **C**	100 lbs. [445 N]	20 lbs. [89 N]
Maximum Moment **M_X**	100 in-lbs. [11.3 Nm]	20 in-lbs. [2.3 Nm]
Maximum Moment **M_Y**	100 in-lbs. [11.3 Nm]	20 in-lbs. [2.3 Nm]
Maximum Payload **W (with shocks)**		15 lbs. [6.8 kg]
Maximum Inertia **J (with shocks)**		0.0970 in-lbs.-sec.^{2} (1.1 X 10^{-2} N-m-sec.^{2})

Note: Higher payloads and inertia possible with external shocks and stops.

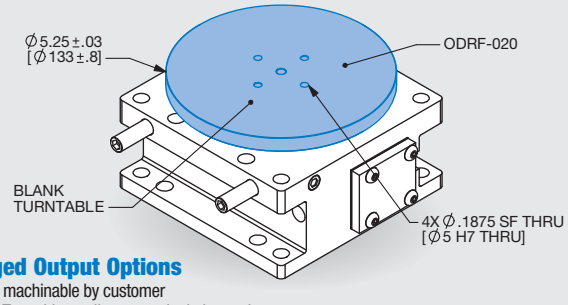
Accessory Mounting Technical Data



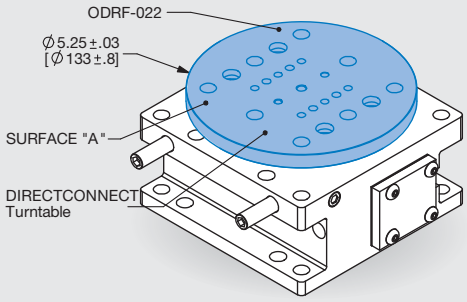
Flow Controls
- Flow controls for adjusting rotational speed



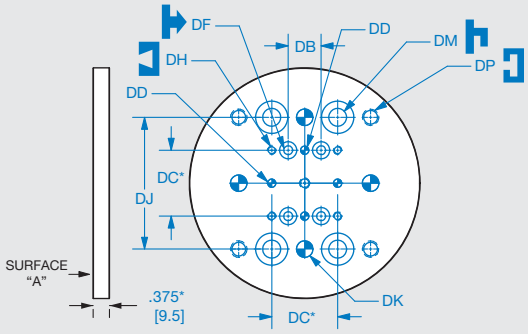
Sensors
- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)
- Sensor Magnet standard



Flanged Output Options
- Easily machinable by customer
- Blank Turntable, easily removed, pin located
- High quality aircraft aluminum, Black anodize finish
- Mounts through pinion with one screw & two do wels



Flanged Output DIRECTCONNECT Turntable
- DIRECTCONNECT Turntable, easily removed, pin located
- High quality aircraft aluminum, Black anodize finish
- Mounts through pinion with one screw & two do wels
- No machining required, DIRECTCONNECT Grippers mount directly
- 90° orientations



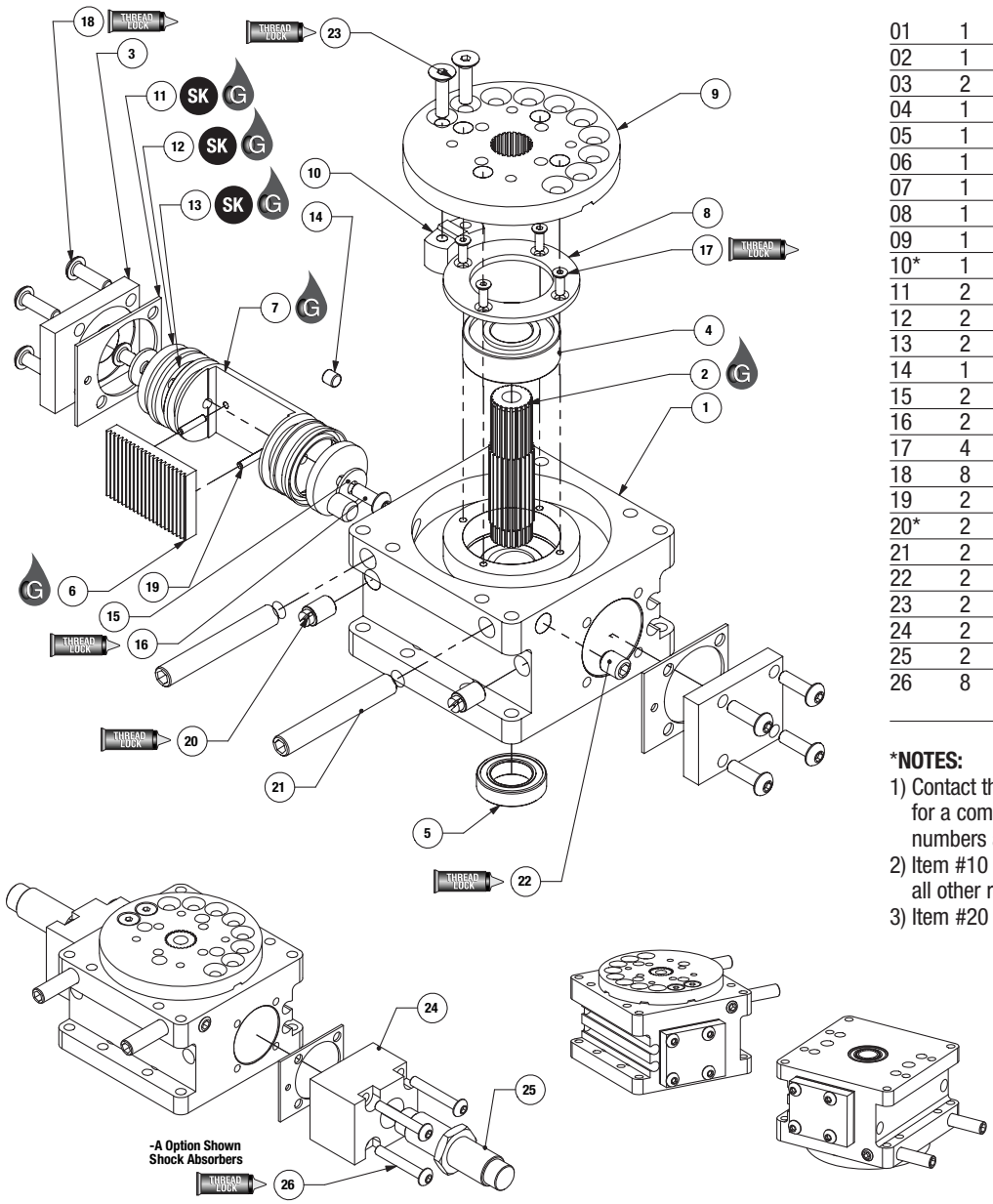
* DIMENSIONS ALSO APPLY TO BLANK TURNTABLE
C'BORE"S FOR BUTTON HEAD SCREWS

DIRECTCONNECT DIMENSIONS
STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DB	.750	19.1
DC	1.500	38.1
DD	.1880 THRU	5 mm THRU
DF		C'bore for M5 Button head screws
DH		M5 THRU
DJ		76.2
DK		10mm THRU
DM		C'bored for M10 Button head screws
DP		M10 THRU

DIRECTCONNECT™

DRF SERIES EXPLODED VIEW



Item	Qty	Name
01	1	Body
02	1	Pinion Shaft
03	2	End Plates
04	1	Upper Bearing
05	1	Lower Bearing
06	1	Rack
07	1	Piston
08	1	Bearing Retainer
09	1	Hub
10*	1	Stop Puck
11	2	Gaskets
12	2	Urethane Bumpers
13	2	U-cups
14	1	Magnet
15	2	Bumper Washers
16	2	Bumper Screws
17	4	Retainer Screws
18	8	End Plate Screws
19	2	Roll Pins
20*	2	Fixed Orifices
21	2	Stop Screws
22	2	Stop Screw Locking Screws
23	2	Stop Puck Screws
24	2	Shock Block
25	2	Shocks
26	8	Shock Block Mounting Screws

***NOTES:**

1) Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.
2) Item #10 Quantity 1 for 180° rotations, all other rotations Quantity 2
3) Item #20 not in size -131

Assembly Procedure

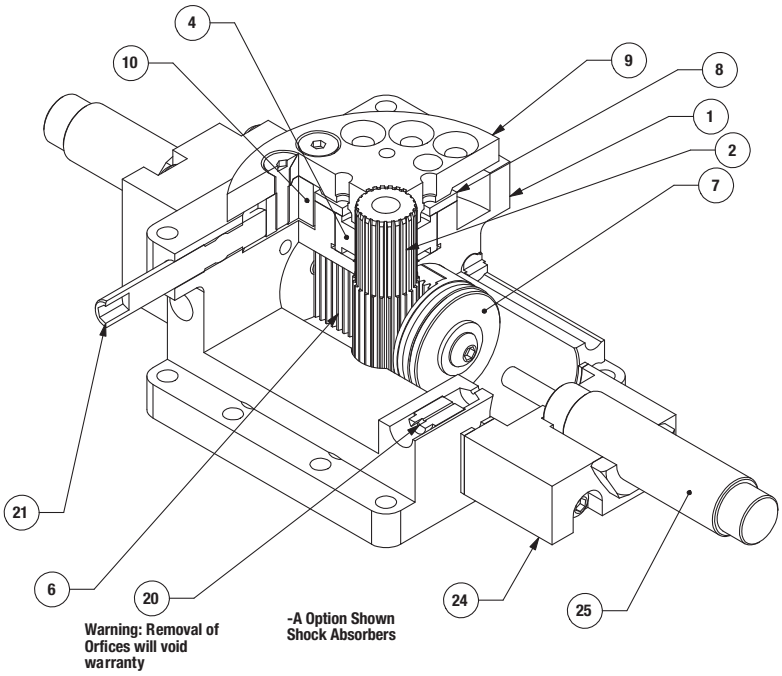
1) Press the Upper Bearing #4 onto the Pinion #2.
2) Install the Bearing Retainer #8 onto the Pinion #2 and press the Hub #9 onto the pinion: install the Stop Puck #10 onto the Hub with the stop puck Screws #23.
3) Assemble the Rack #6 to the Piston #7 with Roll Pins #19.
4) Grease the U-Cups #13 and install them onto the Piston #7.
5) Press the Magnet #14 into the Piston #7.
6) Assemble the Bumper #12, Washers #15 and Bumper Screw #16 onto the Piston #7.
7) Lubricate the Body #1 bore and install the Piston Assembly into the body.
8) Press the Lower Bearing #5 into the Body #1.
9) Locate the Piston assembly so it is aligned with an outer edge of the body.
10) Lubricate the Pinion assembly and align the key with the same edge of the Body as the Piston and Press the Pinion into the Body.
11) Rotate the Hub Assembly through the full travels and insure that the Piston is correctly located in the Body, adjust the travel of the Piston if necessary.
12) Grease the Gasket #11 and install the End Plate #3 onto the Body #1.
13) Install the 2 Orifices #20 into the Body #1 screw them in until they bottom.
14) Install the Bearing Retainer Screws #17.

-A Option Assembly Procedure:

1) Install the Shock Absorber #25 in to the Shock Blocks #24, use Teflon® tape to seal and tighten the lock nut if shock comes with one.
2) Screw the Shock Block onto the Body using the Mounting Screws #26.

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon™ Based Grease | GLUE Super Bonder | Third Angle Projection

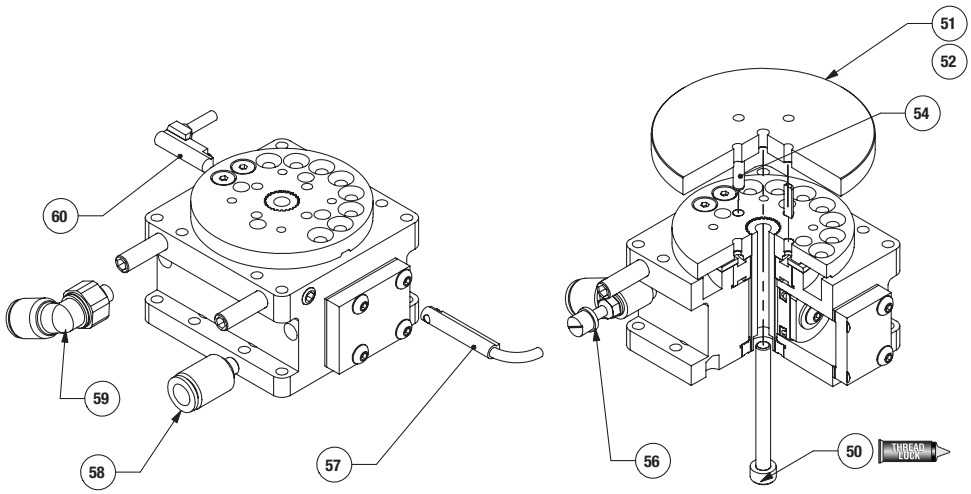
DRF SERIES ASSEMBLED VIEW



Item	Qty	Name
01	1	Body
02	1	Pinion Shaft
04	1	Upper Bearing
06	1	Rack
07	1	Piston
08	1	Upper Bearing Retainer
09	1	Hub
10*	2	Stop Pucks
20	2	Fixed Orifices
21	2	Stop Screws
24	2	Shock Blocks
25	2	Shocks

***NOTES:**
1) Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.
2) Item #10 Quantity 1 for 180° rotations, all other rotations Quantity 2.

Accessory Installation & Adjustment Instructions



Item	Qty	Name
50	1	Soc Head Cap Screw
51	1	Blank Turntable
52	1	DIRECTCONNECT Turntable
54	2	Dowel Pins
56	1 or 2	Adjustable Flow Control
57	1 or 2	Magneto Resistive Sensor, with Quick Disconnect
58	1 or 2	Plumbing Fitting, Push-in straight
59	1 or 2	Plumbing Fitting, Push-in 90° Elbow
60	1 or 2	Magneto Resistive Sensor, 90° barrel, with Quick Disconnect

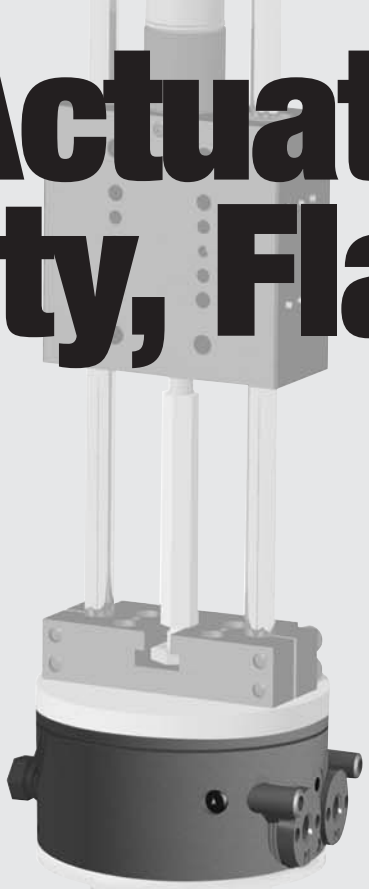
Magneto Resistive Sensors
1) Insert sensors #57 or #60 from either end of the profile slots and set the sensor with the integrated slotted screw set.

Plumbing Fittings
1) Plumbing fittings #58 & #59 can be used in an y airport.
2) Flow controls #56 can be inserted and used in an y airport.

Turntable
1) Insert the two Dowel Pins #54 into the hub (slip fit).
2) Attach the turntable #51 or #52, onto the dowel Pins.
3) Put thread lock on the Socket Head Screw #50, insert it through the Pinion and tighten.

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX™ Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon™ Based Grease | GLUE Super Bonder | Third Angle Projection

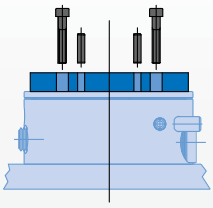
Rotary Actuators- Light Duty, Flange Output



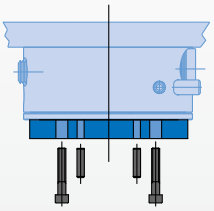
- **Tight spaces:** The “ultra thin” profile and bearing supported flange provide an extremely compact package for tight space applications. Payload can be connected directly to the flange without the need for extra bearing support.
- **Precision applications:** Zero backlash, preloaded ball bearings, and slip fit dowel pins make this a very precise and repeatable rotary actuator.
- **Rotary Air Manifold** Eliminates twisted airline.

Mounting Information:

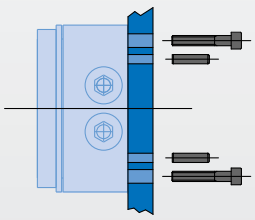
Mounts and operates in any orientation



Payload attaches to flange with screws and locates by using dowel pins



Unit can operate inverted with payload attached to the flange.



Body mounts with screws and locates with dowel pins for accuracy

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**30-100 psi**	**2-7 bar**
Cylinder Type	**Dual Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton Seals (optional)	**-20°~300° F**	**-30°~150° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features

Non-Adjustable Flow Controls
Built-in for smooth motion. Additional adjustable flow controls available

Hardened Tool Steel
Rack and pinion components are made from hardened tool steels

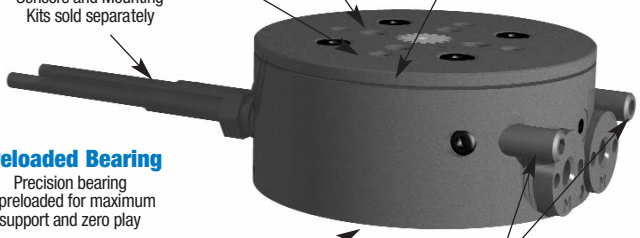
Optional Flange Seal
For harsh environments. Can be used with purge or scavenge port

Dowel Holes
Slip fit dowel holes in body and flange

Flange Hardstops
Located directly on the flange beneath the payload

Optional Clean Room Seal
Assembled with flange seal, clean room grade lubricant, and corrosion resistant hardware

Sensors
Sensors and Mounting Kits sold separately



Preloaded Bearing
Precision bearing is preloaded for maximum support and zero play

Optional Single Line Rotary Manifold
Eliminates twisted air line

Adjustable Stop Screws
Adjustable stop screws to adjust rotational position

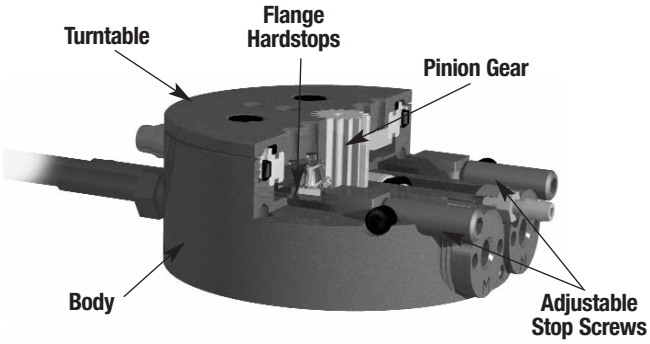
Self-Lubricating Seals
Self lubricating dynamic seals (Buna-N only)

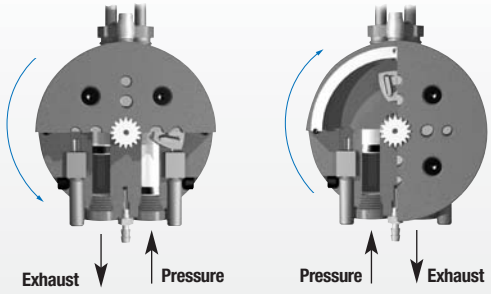
Direct Replacement
RR-18 & RR-28 are retrofittable from **RR-16 & RR-26**

Quality Components
One piece high strength 6013-T6 aircraft quality aluminum body and flange

Anodized Components
Body and flange are hard-coat anodize to 60RC with Teflon® impregnation

Operating Principle





- Air pressure supplied to both cylinders simultaneously using internal porting, drives the piston racks in opposite directions.
- The piston racks simultaneously drive the pinion gear which is attached to the flange.
- The flange is supported in the body by a preloaded ball bearing
- Hardstops, located directly on the flange, reduce wear on internal drive components.

Designed and manufactured in the USA

Style-RR Rotary Actuator
Size -18M

Style:	RR-18	RR-18M
Max. Payload:	1 lbs.	0.45 Kg
Torque:	6.5 in/lbs	0.7 N-m
Weight:*	0.44 lbs.	0.20 Kg

*Base unit.

See Page 3.28

Style-RR Rotary Actuator
Size -28M

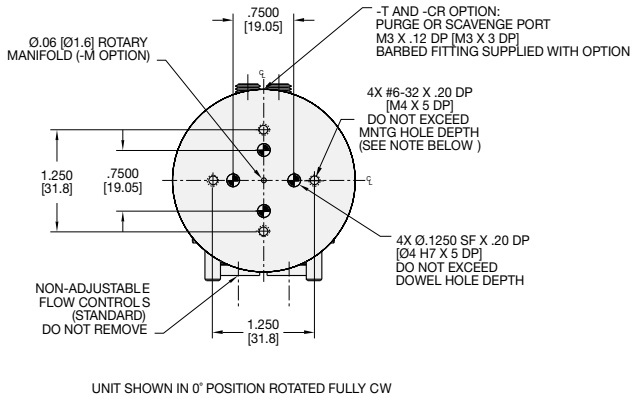
Style:	RR-28	RR-28M
Max. Payload:	3 lbs.	1.3 Kg
Torque:	22 in/lbs	2.5 N-m
Weight:*	1.20 lbs.	0.55 Kg

*Base unit.

See Page 3.29

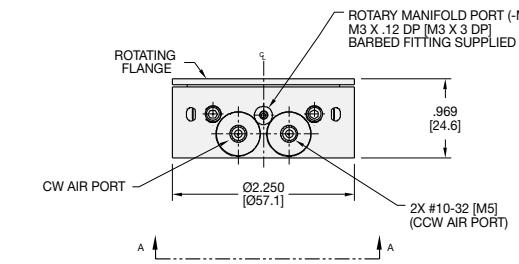
ROTARY ACTUATORS RR-18M
FLANGE OUTPUT SERIES

Robohand

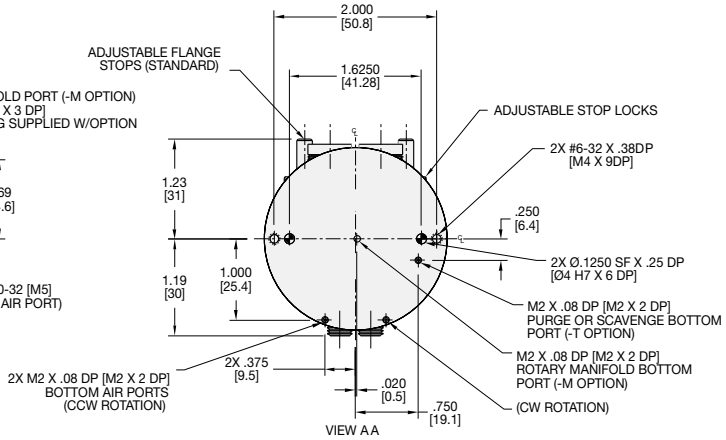


UNIT SHOWN IN 0° POSITION ROTATED FULLY CW

Specifications	RR-18	RR-18M
Maximum Payload	1.0 lbs.	0.45 Kg
Maximum Payload Inertia	0.0016 in-lb-sec^2	0.000181 N-m-sec^2
Maximum Rotation	180°	180°
Maximum Torque Mid-Stroke @ 100 PSI	6.5 in-lbs.	0.7 N-m
Maximum Torque End of Stroke @ 100 PSI	6.5 in-lbs.	0.7 N-m
Pitch Diameter of Pinion	0.333 in.	8.46mm
Weight	0.48 lbs.	0.22 Kg
Pressure Range	30-100 psi	2-7 bar
Bore Ø (2X)	0.500 in.	12.70 mm
Displacement	0.205 in^3.	3.37 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton Seals	-20°~300° F	-30°~150° C
Actuation Time (180° @ 80PSI/5.5 Bar)	0.30 sec.	0.30 sec.
Actuation Time (90° @ 80PSI/5.5 Bar)	0.25 sec.	0.25 sec.
End Stop Repeatability	±0.02°	±0.02°
End Stop Adjustability	23°	23°
Over-Travel (each direction)	4°	4°
Valve required to actuate	4-way, 2-position	



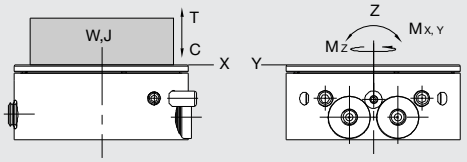
PLEASE NOTE: THE ONLY FEATURES THAT ARE NOT DIRECTLY RETROFITABLE TO THE RR-16 IS THE SHALLOWER TAP DOWEL DEPTH ON THE TURNTABLE AND THE DIFFERENT SENSORS AND SENSOR MOUNTING KIT.



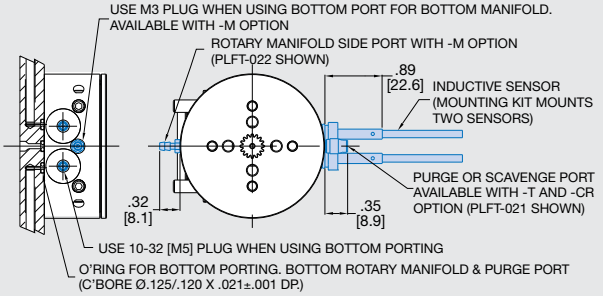
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information



Loading Capacity	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tension **T**	50 lbs	222 N	10 lbs	44 N
Maximum Compression **C**	250 lbs	1112 N	50 lbs	222 N
Maximum Moment **Mx**	100 in.-lbs.	11 Nm	20 in.-lbs.	2 Nm
Maximum Moment **My**	100 in.-lbs.	11 Nm	20 in.-lbs.	2 Nm
Maximum Payload **W**			1 lbs.	0.45 Kg
Maximum Inertia **J**			0.0016 in-lb-sec^2	0.000181 N-m-sec^2



How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | METRIC | FLANGE SEAL (See below)

RR-18 **M** - [ ] - **M** - [ ] - **V**

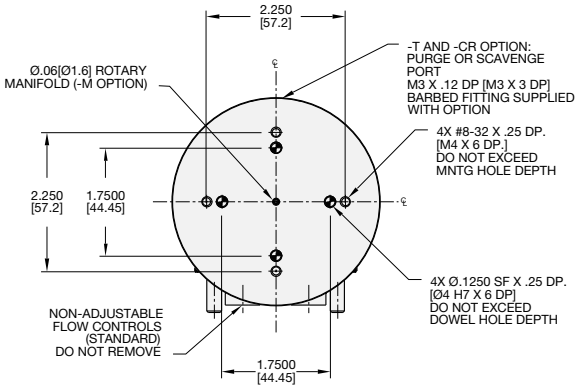
(See below) ROTATION | MANIFOLD | VITON SEALS

DEGREE OF ROTATION 45°, 90°, 135°, or 180°
(consult factory for intermediate degrees of rotation)

FLANGE SEAL OPTION -T, -CR
-T Sealed Flange, **-CR** Sealed Flange w/Food Grade Grease & Corrosion Resistant Hardware

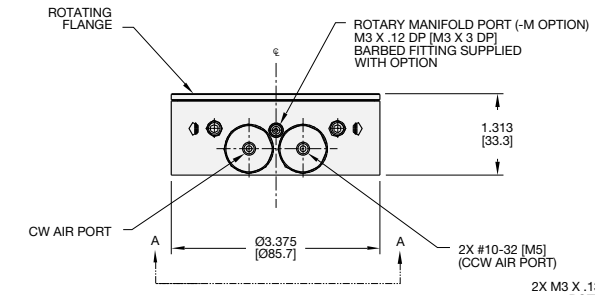
SENSOR ACCESSORIES	STANDARD	METRIC	QTY/UNIT
Sensor Mounting Kit (mounts 2 sensors)	OSMK-024	OSMK-024	1
NPN Inductive Sensor with Quick Disconnect*	OISN-014	OISN-014	1 or 2
PNP Inductive Sensor with Quick Disconnect*	OISP-014	OISP-014	1 or 2
Quick Disconnect 2M Cable Length*	CABL-010	CABL-010	1 or 2
Quick Disconnect 5M Cable Length*	CABL-013	CABL-013	1 or 2
PNEUMATIC ACCESSORIES			
M3 Plumbing Fitting Push-In for 3mm OD Tube	PLFT-021	PLFT-021	2
M3 Plumbing Fitting Barb for 2mm ID Tube	PLFT-022	PLFT-022	2
#10-32 Flow Control	VLVF-007		2
M5 Flow Control		VLVF-008	2
Standard Seal Repair Kit	SLKT-173	SLKT-173	1
Viton Seal Repair Kit	SLKT-173V	SLKT-173V	1
Bottom Air Ports Manifold Seal Kit	SLKT-174V	SLKT-174V	1

*Sensor and cable sold separately.

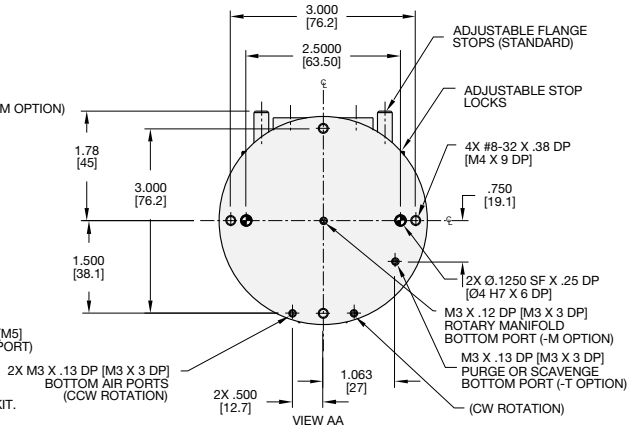


UNIT SHOWN IN 0° POSITION ROTATED FULLY CW

Specifications	RR-28	RR-28M
Maximum Payload	3.0 lbs.	1.36 Kg
Maximum Payload Inertia	0.0111 in-lb-sec^2	0.001255 N-m-sec^2
Maximum Rotation	180°	180°
Maximum Torque Mid-Stroke @ 100 PSI	22 in-lbs.	2.5 N-m
Maximum Torque End of Stroke @ 100 PSI	22 in-lbs.	2.5 N-m
Pitch Diameter of Pinion	0.50 in.	12.7 mm
Weight	1.44 lbs.	0.65 Kg
Pressure Range	30-100 psi	2-7 bar
Bore Ø (2X)	0.750 in.	19.05 mm
Displacement	0.69 in^3.	11.4 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton Seals	-20°~300° F	-30°~150° C
Actuation Time (180° @ 80PSI/5.5 Bar)	0.35 sec.	0.35 sec.
Actuation Time (90° @ 80PSI/5.5 Bar)	0.30 sec.	0.30 sec.
End Stop Repeatability	±0.02°	±0.02°
End Stop Adjustability	23°	23°
Over-Travel (each direction)	8°	8°
Valve required to actuate	4-way, 2-position	



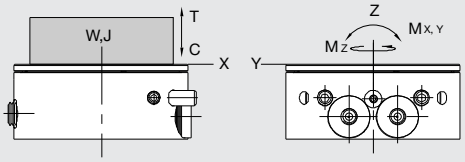
PLEASE NOTE: THE ONLY FEATURES THAT ARE NOT DIRECTLY RETROFITTABLE TO THE RR-26 IS THE DIFFERENT SENSORS & SENSOR MOUNTING KIT.



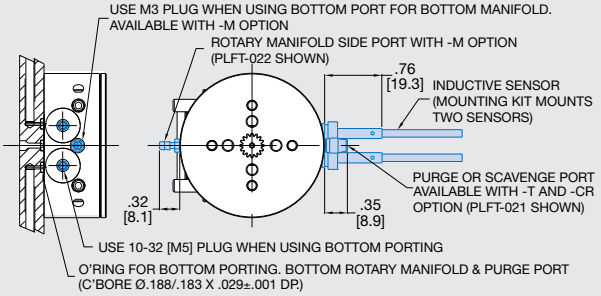
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information



Loading Capacity	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tension **T**	75 lbs	334 N	15 lbs	67 N
Maximum Compression **C**	500 lbs	2224 N	100 lbs	445 N
Maximum Moment M_X	250 in.-lbs.	28 Nm	50 in.-lbs.	6 Nm
Maximum Moment M_Y	250 in.-lbs.	28 Nm	50 in.-lbs.	6 Nm
Maximum Payload **W**			3 lbs.	1.36 Kg
Maximum Inertia **J**			0.0111 in-lb-sec^2	0.001255 N-m-sec^2



How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | METRIC | FLANGE SEAL (See below)

RR-28 **M** - [ROTATION] - **M** - [MANIFOLD] - [VITON SEALS] **V**

(See below)

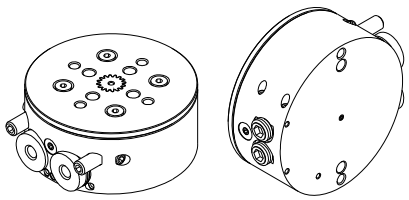
DEGREE OF ROTATION 45°, 90°, 135°, or 180°
(consult factory for intermediate degrees of rotation)

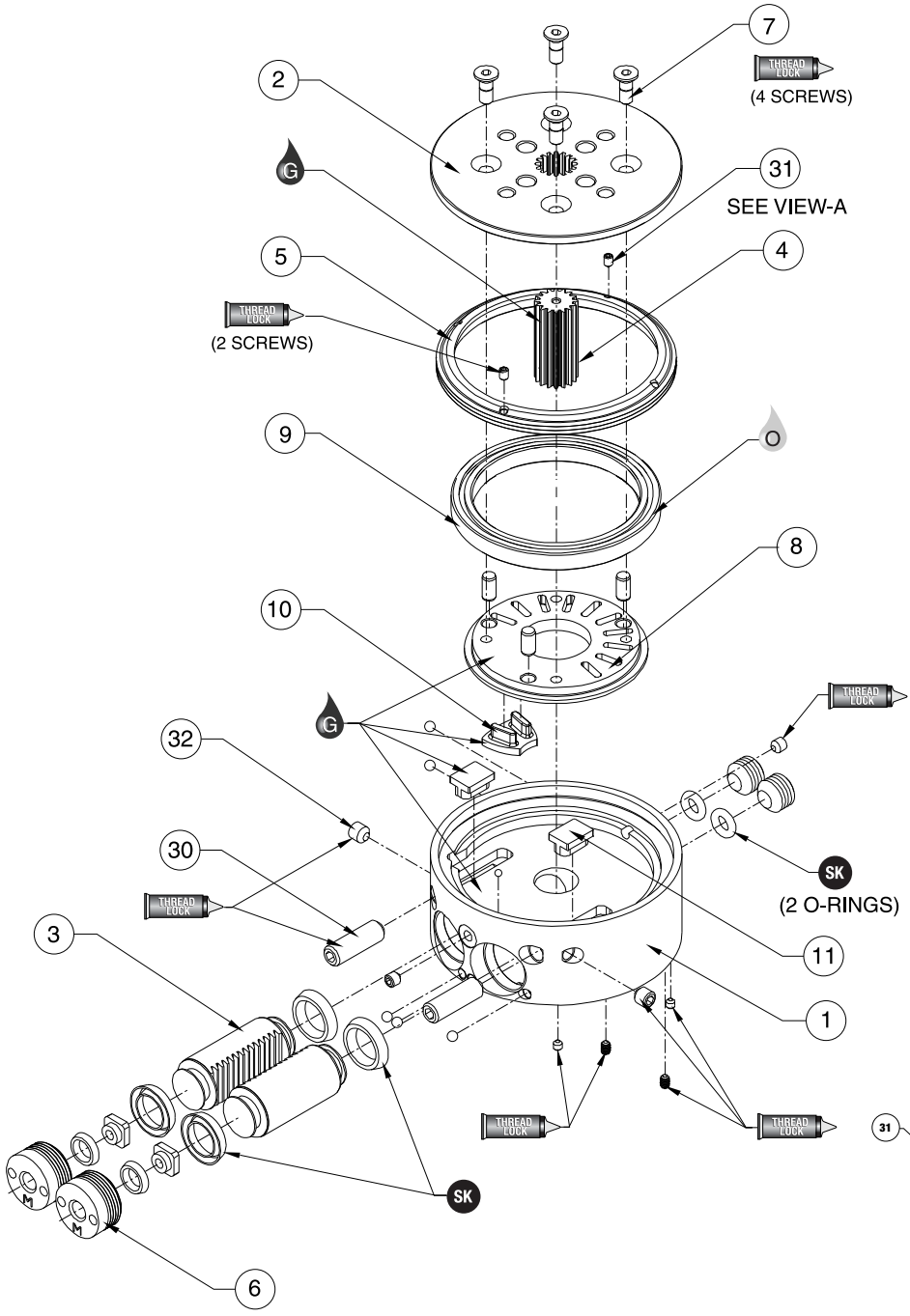
FLANGE SEAL OPTION -T, -CR
-T Sealed Flange, **-CR** Sealed Flange w/Food Grade Grease & Corrosion Resistant Hardware

SENSOR ACCESSORIES	STANDARD	METRIC	QTY/UNIT
Sensor Mounting Kit (mounts 2 sensors)	OSMK-024	OSMK-024	1
NPN Inductive Sensor with Quick Disconnect*	OISN-014	OISN-014	1 or 2
PNP Inductive Sensor with Quick Disconnect*	OISP-014	OISP-014	1 or 2
Quick Disconnect 2M Cable Length*	CABL-010	CABL-010	1 or 2
Quick Disconnect 5M Cable Length*	CABL-013	CABL-013	1 or 2
PNEUMATIC ACCESSORIES			
M3 Plumbing Fitting Push-In for 3mm OD Tube	PLFT-021	PLFT-021	2
M3 Plumbing Fitting Barb for 2mm ID Tube	PLFT-022	PLFT-022	2
#10-32 Flow Control	VLVF-007		2
M5 Flow Control		VLVF-008	2
Standard Seal Repair Kit	SLKT-175	SLKT-175	1
Viton Seal Repair Kit	SLKT-175V	SLKT-175V	1
Bottom Air Ports Manifold Seal Kit	SLKT-176V	SLKT-176V	1

*Sensor and cable sold separately.

RR-18, -28 Series Exploded View





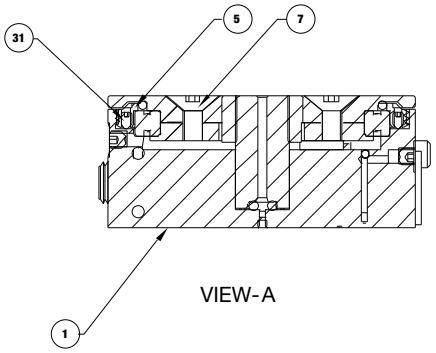
Item	Qty	Name
01	1	Body
02	1	Flange/Turntable
03	2	Rack, Piston
04	1	Pinion
05	1	Lock Nut
06	2	Plug, Flow Control
07	4	Turntable Mounting Screws
08	1	Clamp Plate
09	1	Bearing, Radial
10	1 or 2	Striker
11	2	Puck
30	2	Stop Screw (Stroke Adjustment)
31	2	Sss, Cone Point
32	2	Stop Screw

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

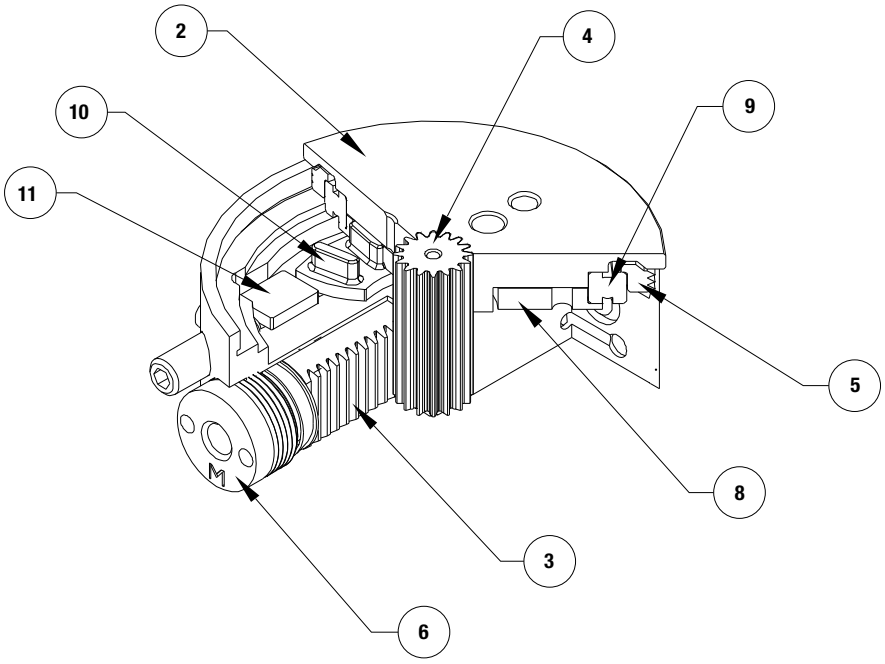
Assembly Procedure

1. Lubricate and install seals
2. Install racks inside body
3. Install plugs
4. Install stop screws, stop screw locks, and pucks
5. Install striker(s) into desired slot from the chamfer side of the clamp plate and place (striker facing down and away from plugs) onto the pucks.
6. Place bearing over clamp plate and install the lock nut.
7. Using a .035” or 2mm allen wrench, install and lock the 2 cone point set screws (#31) to lock the lock nut in place.
8. Install pinion and dowel pins into turntable and then mate that subassembly to the clamp plate.
9. Install turntable-mounting screws.
10. Fine-tune the stop screws to achieve the desired stroke and then tighten the stop screw locks.

SK Seal Repair Kit Order #’s See Product Data Sheets



SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection



Item	Qty	Name
02	1	Flange/Turntable
03	2	Rack, Piston
04	1	Pinion
05	1	Lock Nut
06	2	Plug, Flow Control
08	1	Clamp Plate
09	1	Bearing, Radial
10	1 or 2	Striker
11	2	Puck
15	1 or 2	Sensor
21	1 or 2	Push-in Fitting
22	1 or 2	Barb Fitting
25	1	Sensor Coupler

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Accessory Installation & Adjustment Instructions

Installation

For each sensor.

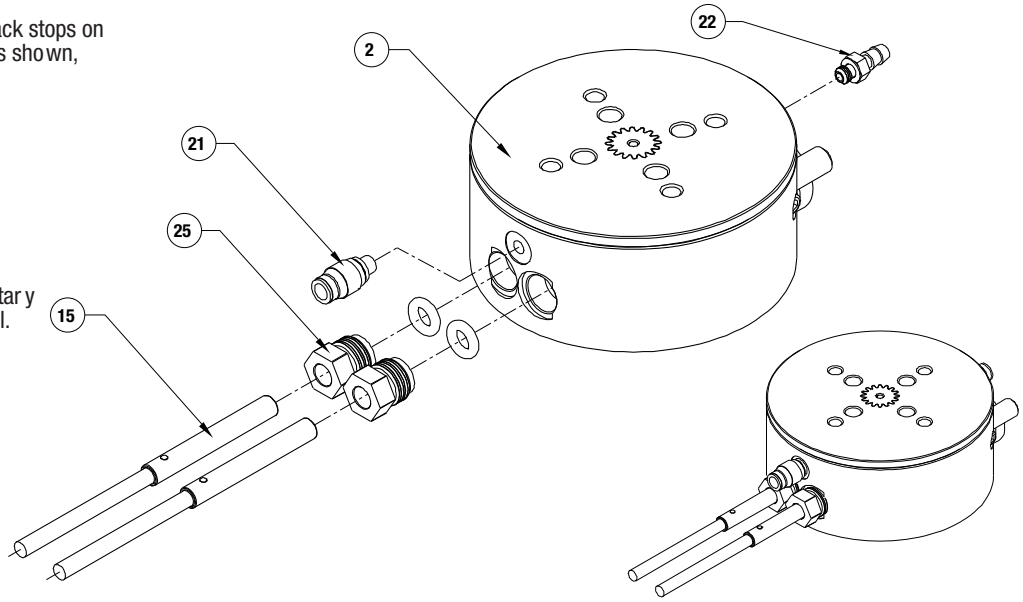
1. Rotate flange so piston rack stops on end stop. Install sensor as shown, pushing in until it stops.
2. Tighten nut.

Plumbing fittings:

Either the barb fitting or the push-in fitting can be used for any M3 port.

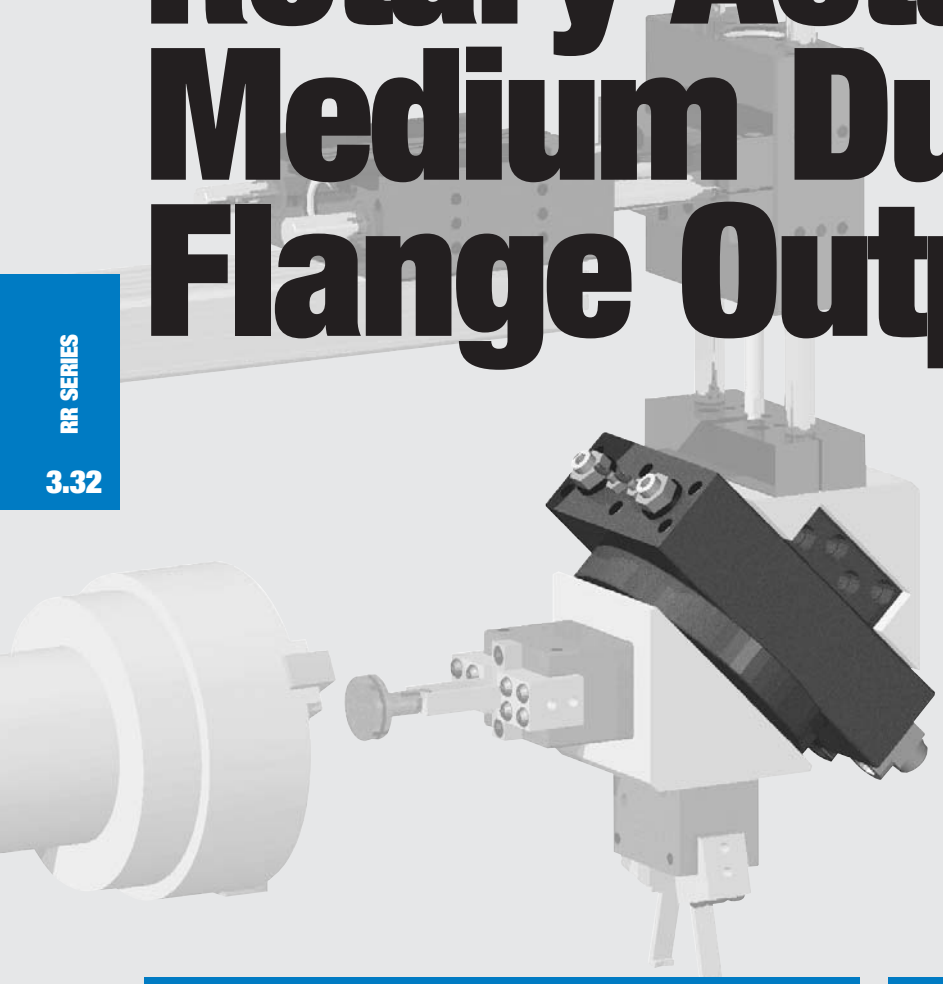
Flow controls (not shown) can be used for the main rotary airports as additional control.

Note: Sensors need to be readjusted when end stops are adjusted.



SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

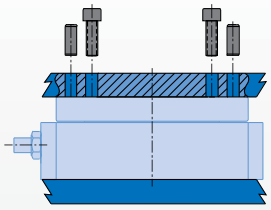
Rotary Actuators- Medium Duty, Flange Output



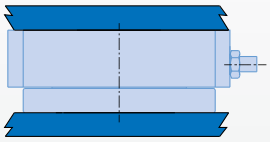
- **Tight spaces:** The “ultra thin” profile and bearing supported flange provide an extremely compact package for tight space applications. Payload can be connected directly to the flange without the need for extra bearing support.
- **Precision applications:** Zero backlash, preloaded ball bearings, and slip fit dowel pins make this a very precise and repeatable rotary actuator.
- **Rotary Air Manifold** Eliminates twisting airlines.

Mounting Information:

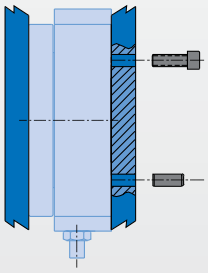
Mounts and operates in any orientation



Payload attaches to flange with screws and locates by using dowel pins



Unit can operate inverted with payload attached to the flange.



Body mounts with screws and locates with dowel pins for accuracy

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**3-7 bar**
Cylinder Type	**Dual Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

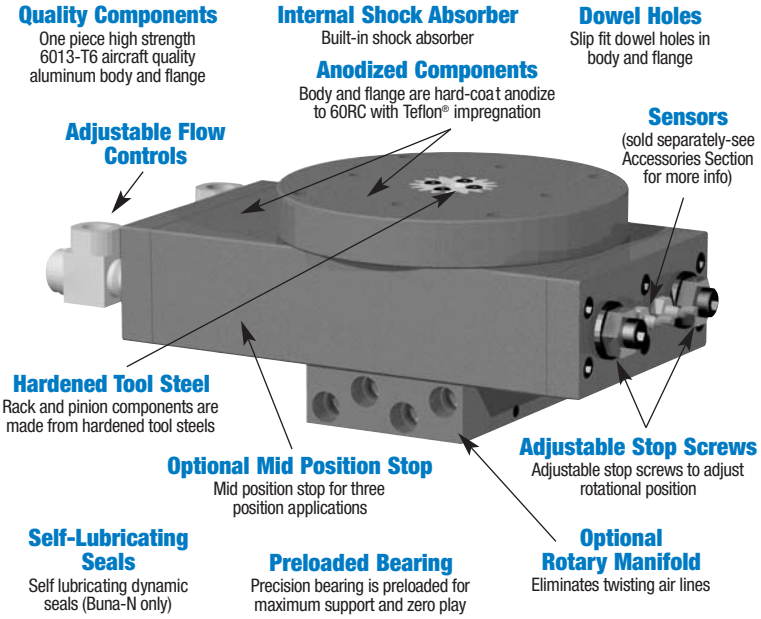
Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton Seals (optional)	**-20°~300° F**	**-30°~150° C**
Temperature range is limited by internal shock absorber		
(RR-36 and RR-46 only)	**-32°~150° F**	**-0°~66° C**

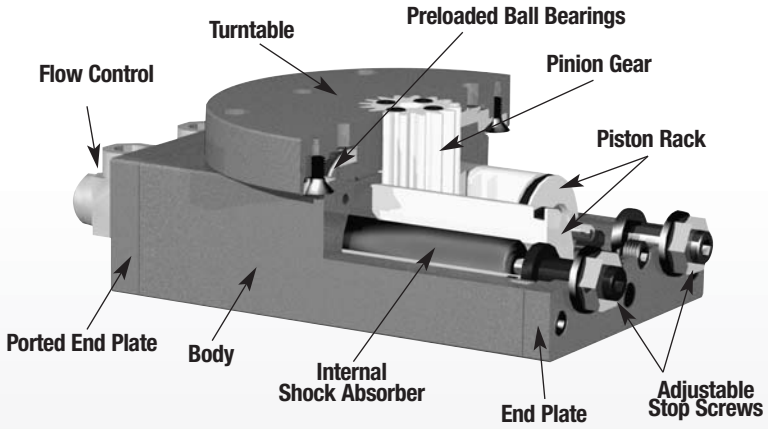
Maintenance Specifications†	
Expected Life	
with Shock Absorbers	**1 million cycles**
without Shock Absorbers	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

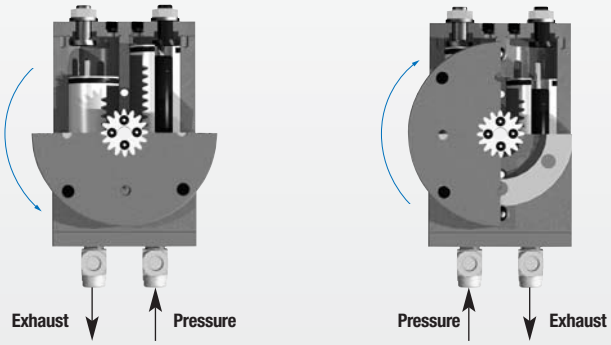
*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features



Operating Principle





- Air pressure supplied to both cylinders simultaneously using internal porting, drives the piston racks in opposite directions.
- The piston racks simultaneously drive the pinion gear which is attached to the flange.
- The flange is supported in the body by a preloaded ball bearing

Designed and manufactured in the USA

Style -RR Rotary Actuator
Size -36M

Style:	RR-36	RR-36M
Max. Payload:	8 lbs.	3.6 Kg
Torque:	65 in/lbs	7.4 N-m
Weight:*	2.9 lbs.	1.3 Kg

*Base unit.

See Pages 3.34

Style -RR Rotary Actuator
Size -46M

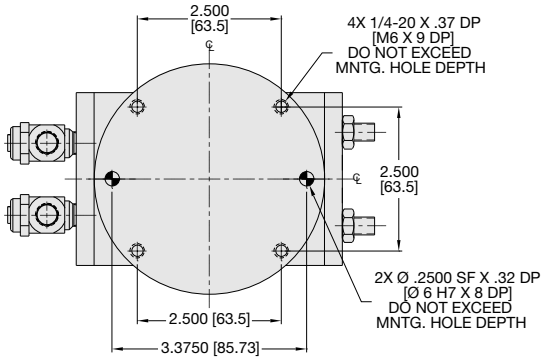
Style:	RR-46	RR-46M
Max. Payload:	15 lbs.	6.8 Kg
Torque:	122 in/lbs	14 N-m
Weight:*	5.0 lbs.	2.3 Kg

*Base unit.

See Pages 3.36

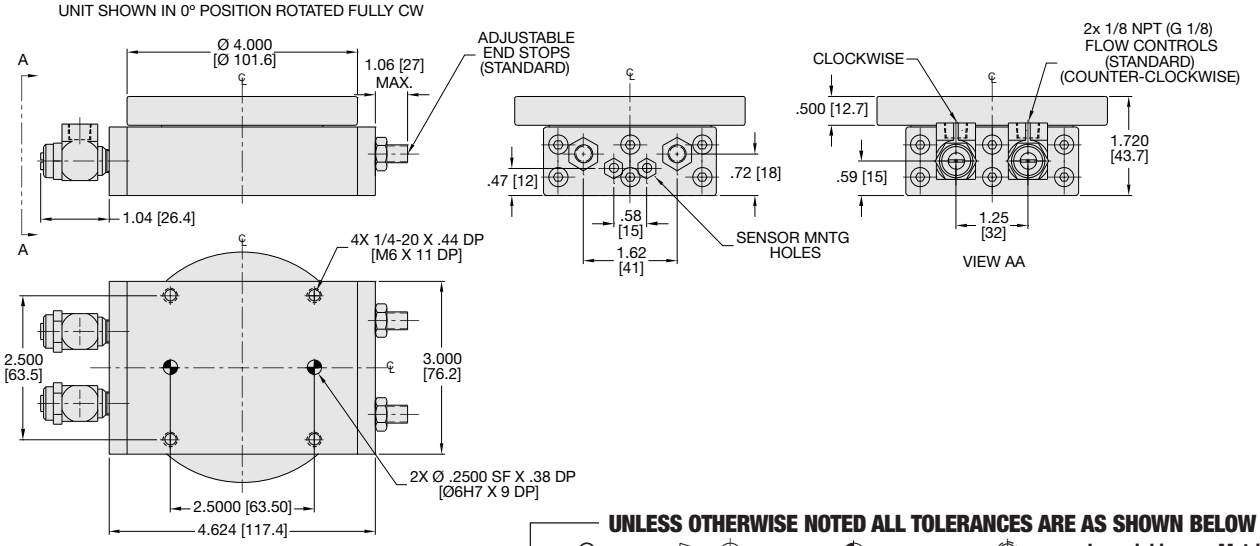
ROTARY ACTUATORS RR-36M
FLANGE OUTPUT SERIES BASE UNIT

Robohand



Specifications	RR-36	RR-36M
Maximum Payload	8.0 lbs.	3.6 Kg
Maximum Payload Inertia	.0414 in.-lbs.-sec^2	.00468 N-m-sec^2
Maximum Rotation	180°	180°
Maximum Torque Mid-Stroke @ 100 PSI	65 in-lbs.	7.4 N-m
Maximum Torque End of Stroke @ 100 PSI	32 in-lbs.	3.7 N-m
Weight of Base Unit	2.9 lbs.	1.3 Kg
Pressure Range	40-100 psi	3-7 bar
Bore Ø (2X)	1.0 in.	25.40 mm
Displacement	2.05 in^3.	33.6 cm^3
Temperature Range		
Standard Seals	32°~150° F	0°~66° C
Viton Seals	32°~150° F	0°~66° C
Actuation Time (180° @ 80PSI/5.5 Bar)	0.35 sec.	0.35 sec.
Actuation Time (90° @ 80PSI/5.5 Bar)	0.25 sec.	0.25 sec.
End Stop Repeatability	±0.02°	±0.02°
End Stop Adjustability	60°	60°
Over-Travel (each direction)	4°	4°
Valve required to actuate	4-way, 2-position	

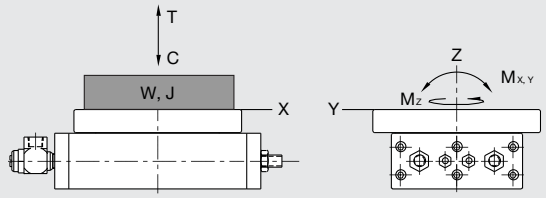
UNIT SHOWN IN 0° POSITION ROTATED FULLY CW



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

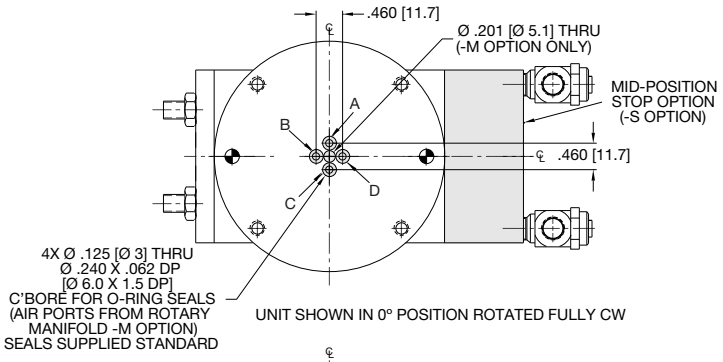
Loading Information

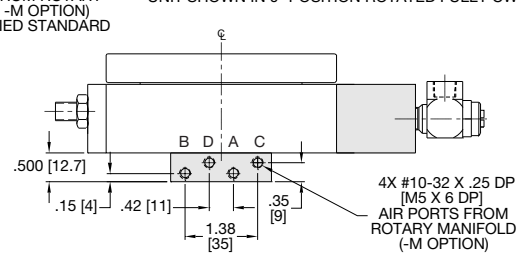


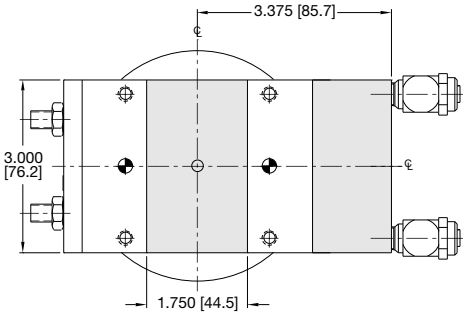
Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tension **T**	100 lbs	445 N	20 lbs	89 N
Maximum Compression **C**	500 lbs	2224 N	100 lbs	445 N
Maximum Moment **Mx**	300 in.-lbs.	34 Nm	75 in.-lbs.	8 Nm
Maximum Moment **My**	300 in.-lbs.	34 Nm	75 in.-lbs.	8 Nm
Maximum Payload **W**			8 lbs.	3.64 Kg
Maximum Inertia **J**			0.0414 in-lb-sec^2	.00468 N-m-sec^2

How to Order: (Order Accessories separately from Basic Model)

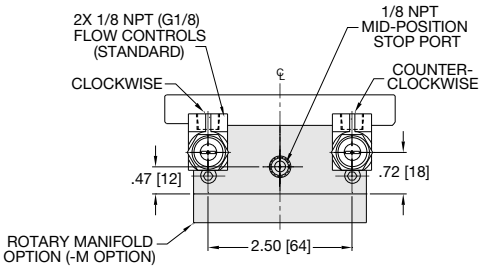
RR-36 **See Next Page**







Specifications	RR-36	RR-36M
Weight (base unit)	2.9 lbs.	1.3 Kg
Weight Adder for Mid-Position Stop	0.4 lbs.	0.18 Kg
Weight Adder for Rotary Manifold	0.1 lbs.	0.04 Kg
Pressure Range	40-100 psi	3-7 bar
Bore Ø of Mid-Position Stop 2X	1.064 in.	27 mm
Mid-Stop Repeatability	±.5°	±.5°
Displacement of Mid-Position Stop	1.200 in^3.	19.66 cm^3
Temperature Range		
Standard Seals	32°~150° F	0°~66° C
Viton Seals	32°~150° F	0°~66° C
Valve required to actuate Mid-Stop	3-way, 2-position	



MID-POSITION STOP VIEW SHOWN

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

METRIC MID-STOP ROTARY MANIFOLD

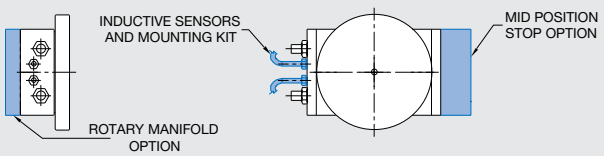
RR-36 M - ____ - S - M - V

BASIC MODEL ROTATION (See below) VITON SEALS

DEGREE OF ROTATION 45°,90°, 135° or 180°
(consult factory for intermediate degrees of rotation)

SENSOR ACCESSORIES	MODEL CODE	ORDER#	QTY/UNIT
Sensor Mounting Kit (Mounts 2 Sensors)		OSMK-024	1
NPN Inductive Sensor with Quick Disconnect*		OISN-014	1 or 2
PNP Inductive Sensor with Quick Disconnect*		OISP-014	1 or 2
Quick Disconnect 2M Cable Length*		CABL-010	1 or 2
Quick Disconnect 5M Cable Length*		CABL-013	1 or 2
PNEUMATIC ACCESSORIES			
Standard Base Unit Seal Repair Kit		SLKT-016	1
Viton Base Unit Seal Repair Kit	-V	SLKT-016V	1
Standard Manifold Seal Repair Kit	-M	SLKT-061	1
Viton Manifold Seal Repair Kit	-M-V	SLKT-061V	1
Standard Mid-Stop Seal Repair Kit	-S	SLKT-062	1
Viton Mid-Stop Seal Repair Kit	-S-V	SLKT-062V	1

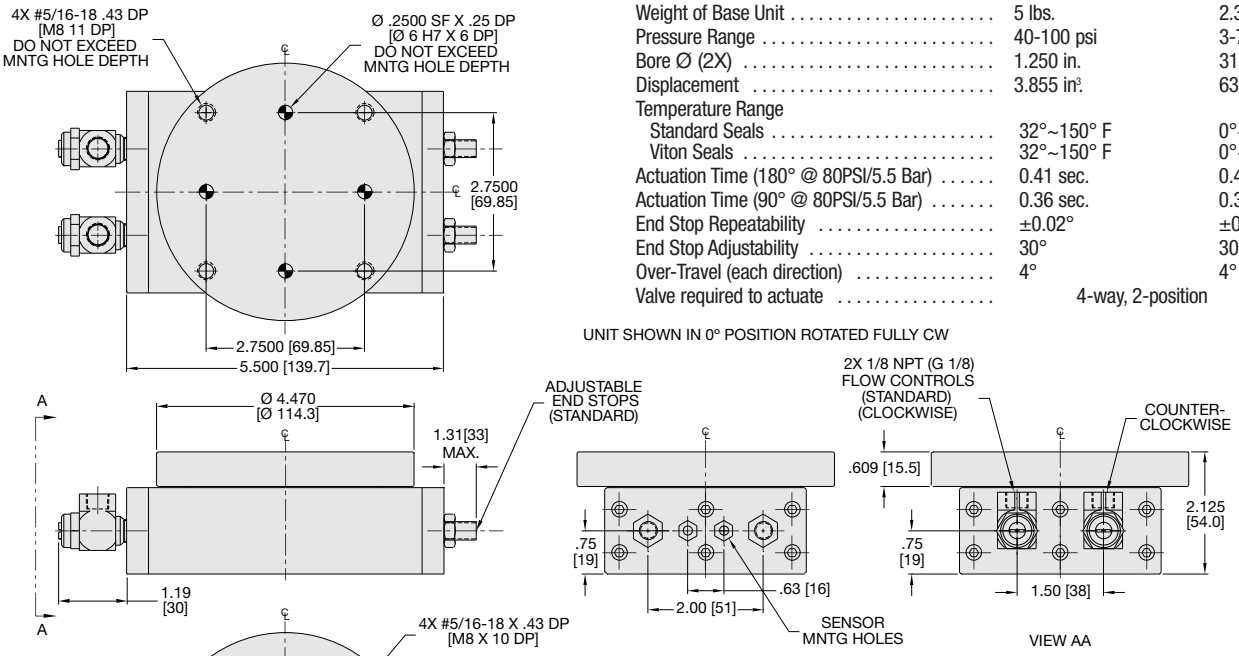
*Sensor and cable sold separately.



ROTARY ACTUATORS RR-46M
FLANGE OUTPUT SERIES BASE UNIT

Robohand

Specifications	RR-46	RR-46M
Maximum Payload	15 lbs.	6.8 Kg
Maximum Payload Inertia	.0970 in.-lbs.-sec^2	.01096 N-m-sec^2
Maximum Rotation	180°	180°
Maximum Torque Mid-Stroke @ 100 PSI	122 in-lbs.	14 N-m
Maximum Torque End of Stroke @ 100 PSI	61 in-lbs.	7 N-m
Weight of Base Unit	5 lbs.	2.3 Kg
Pressure Range	40-100 psi	3-7 bar
Bore Ø (2X)	1.250 in.	31.75 mm
Displacement	3.855 in^3.	63.18 cm^3
Temperature Range		
Standard Seals	32°~150° F	0°~66° C
Viton Seals	32°~150° F	0°~66° C
Actuation Time (180° @ 80PSI/5.5 Bar)	0.41 sec.	0.41 sec.
Actuation Time (90° @ 80PSI/5.5 Bar)	0.36 sec.	0.36 sec.
End Stop Repeatability	±0.02°	±0.02°
End Stop Adjustability	30°	30°
Over-Travel (each direction)	4°	4°
Valve required to actuate	4-way, 2-position	



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

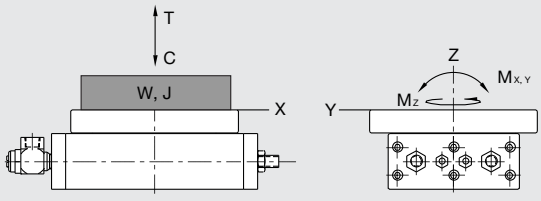
Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

Loading Information

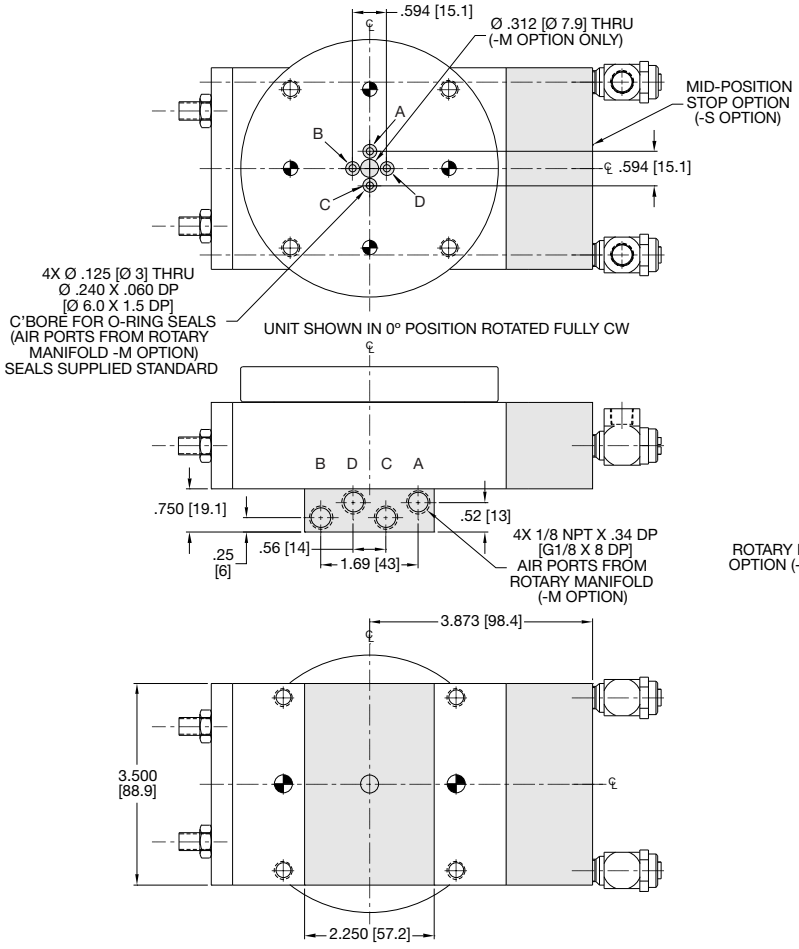
How to Order: (Order Accessories separately from Basic Model)

RR-46 **See Next Page**

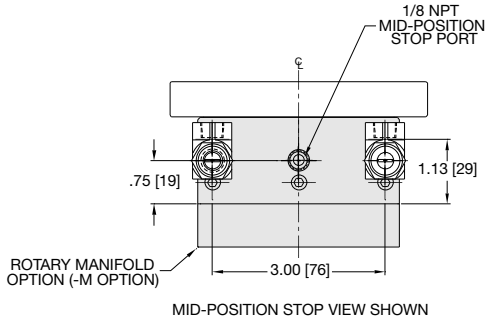


Loading Capacity†	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tension **T**	200 lbs	890 N	40 lbs	178 N
Maximum Compression **C**	1000 lbs	4448 N	200 lbs	890 N
Maximum Moment $\mathbf{M_x}$	500 in.-lbs.	57 Nm	100 in.-lbs.	11 Nm
Maximum Moment $\mathbf{M_y}$	500 in.-lbs.	57 Nm	100 in.-lbs.	11 Nm
Maximum Payload **W**			15 lbs.	6.8 Kg
Maximum Inertia **J**			0.0970 in-lb-sec^2	.01096 N-m-sec^2

RR-46M ROTARY ACTUATOR OPTIONS -S, -M, OPTIONAL MID-STOP, ROTARY MANIFOLD



Specifications	RR-46	RR-46M
Weight (base unit)	5.0 lbs.	2.3 Kg
Weight Adder for Mid-Position Stop	0.42 lbs.	0.19 Kg
Weight Adder for Rotary Manifold	0.38 lbs.	0.17 Kg
Pressure Range	40-100 psi	3-7 bar
Bore Ø of Mid-Position Stop 2X	1.314 in.	33.37 mm
Displacement of Mid-Position Stop	2.194 in^3.	35.95 cm^3
Mid-Stop Repeatability	±.5°	±.5°
Temperature Range		
Standard Seals	32°~150° F	0°~66° C
Viton Seals	32°~150° F	0°~66° C
Valve required to actuate Mid-Stop	3-way, 2-position	



MID-POSITION STOP VIEW SHOWN

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

METRIC MID-STOP ROTARY MANIFOLD

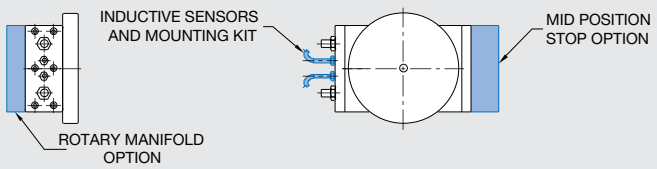
RR-46 M - ____ - S - M - V

BASIC MODEL ROTATION (See below) VITON SEALS

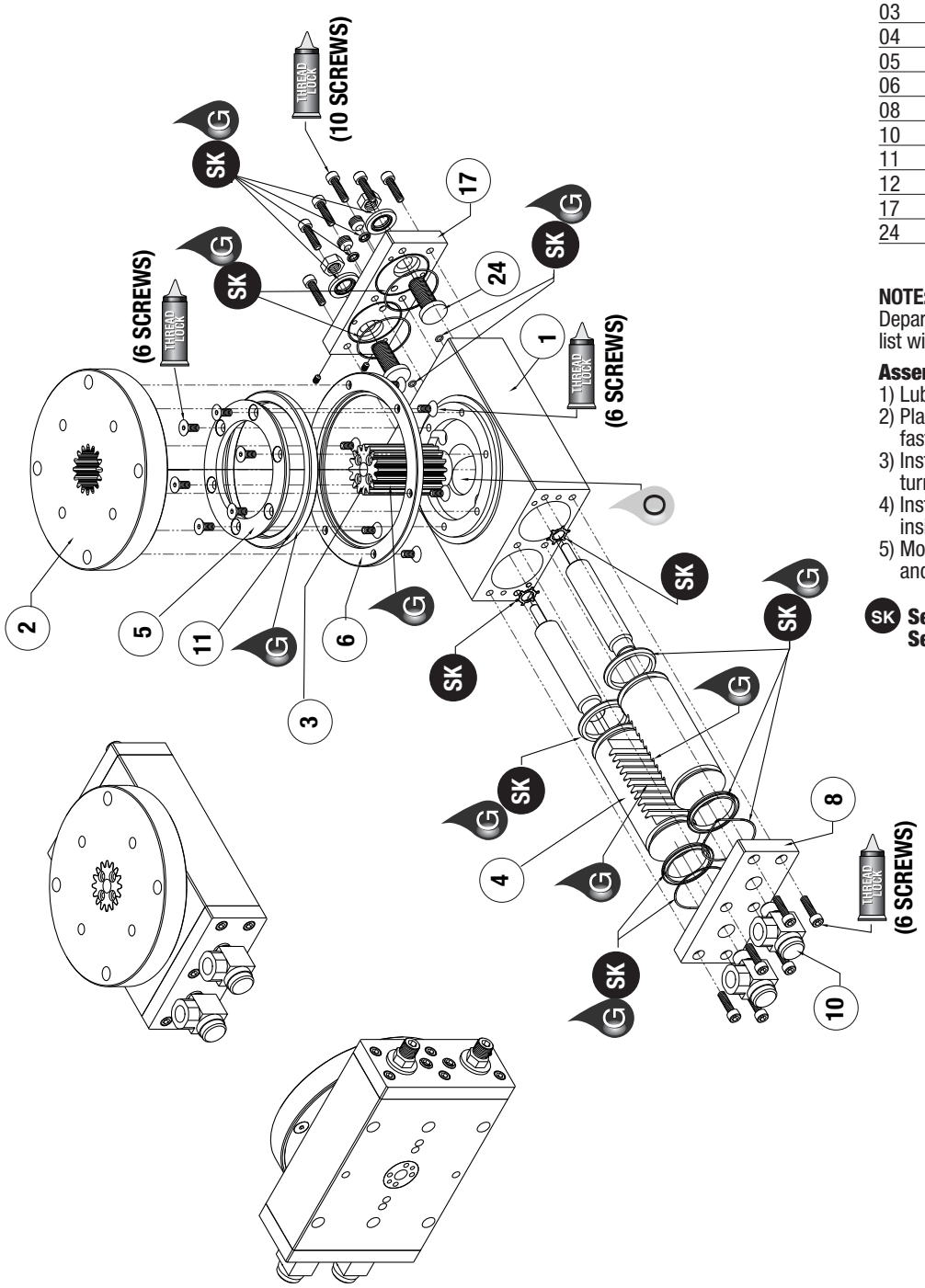
DEGREE OF ROTATION 45°,90°, 135° or 180°
(consult factory for intermediate degrees of rotation)

SENSOR ACCESSORIES	MODEL CODE	ORDER#	QTY/UNIT
Sensor Mounting Kit (Mounts 2 Sensors)		OSMK-024	1
NPN Inductive Sensor with Quick Disconnect*		OISN-014	1 or 2
PNP Inductive Sensor with Quick Disconnect*		OISP-014	1 or 2
Quick Disconnect 2M Cable Length*		CABL-010	1 or 2
Quick Disconnect 5M Cable Length*		CABL-013	1 or 2
PNEUMATIC ACCESSORIES			
Standard Base Unit Seal Repair Kit		SLKT-017	1
Viton Base Unit Seal Repair Kit	-V	SLKT-017V	1
Standard Manifold Seal Repair Kit	-M	SLKT-067	1
Viton Manifold Seal Repair Kit	-M-V	SLKT-067V	1
Standard Mid-Stop Seal Repair Kit	-S	SLKT-068	1
Viton Mid-Stop Seal Repair Kit	-S-V	SLKT-068V	1

*Sensor and cable sold separately.



RR-36 & 46 Series Exploded View



Item	Qty	Name
01	1	Body, Main
02	1	Turntable
03	1	Pinion
04	2	Rack, Piston
05	1	Inner Bearing Ring
06	1	Ring, Outer Bearing
08	1	Plate, Ported End
10	2	Flow Control
11	1	Bearing
12	1	Shock Absorber
17	1	Plate, End
24	2	Stop Adjustment Screws

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedure

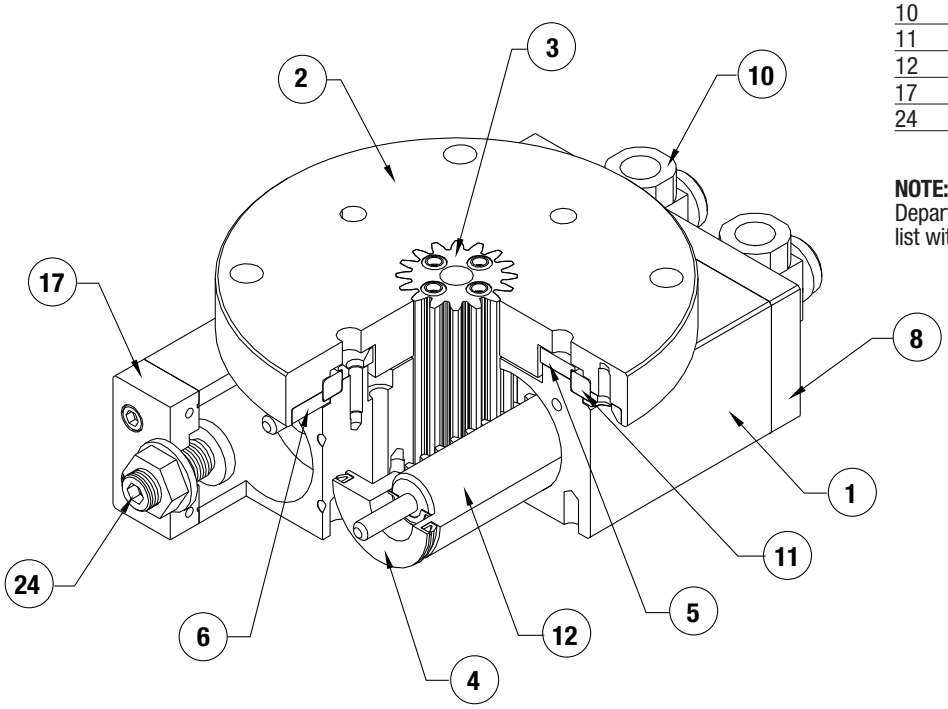
1) Lubricate and install seals.
2) Place outer ring and bearing on body, fasten inner ring to body.
3) Install outer bearing ring on turntable/pinion subassembly.
4) Install shocks in racks and install inside body.
5) Mount end plates, adjustable stops, and flow controls to body.

SK Seal Repair Kit Order #'s See Product Data Sheets

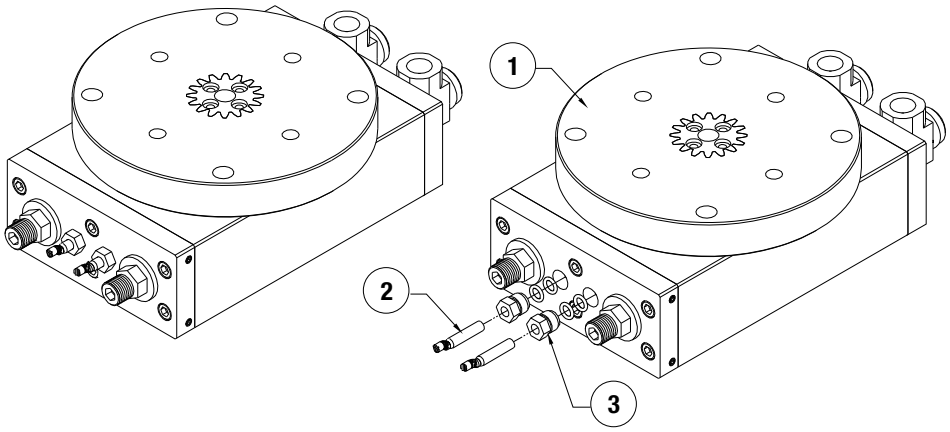
SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection

Item	Qty	Name
01	1	Body, Main
02	1	Turntable
03	1	Pinion
04	2	Rack, Piston
05	1	Inner Bearing Ring
06	1	Ring, Outer Bearing
08	1	Plate, Ported End
10	2	Flow Control
11	1	Bearing
12	1	Shock Absorber
17	1	Plate, End
24	2	Stop Adjustment Screws

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.



Accessory Installation & Adjustment Instructions



Installation

For Each Sensor:

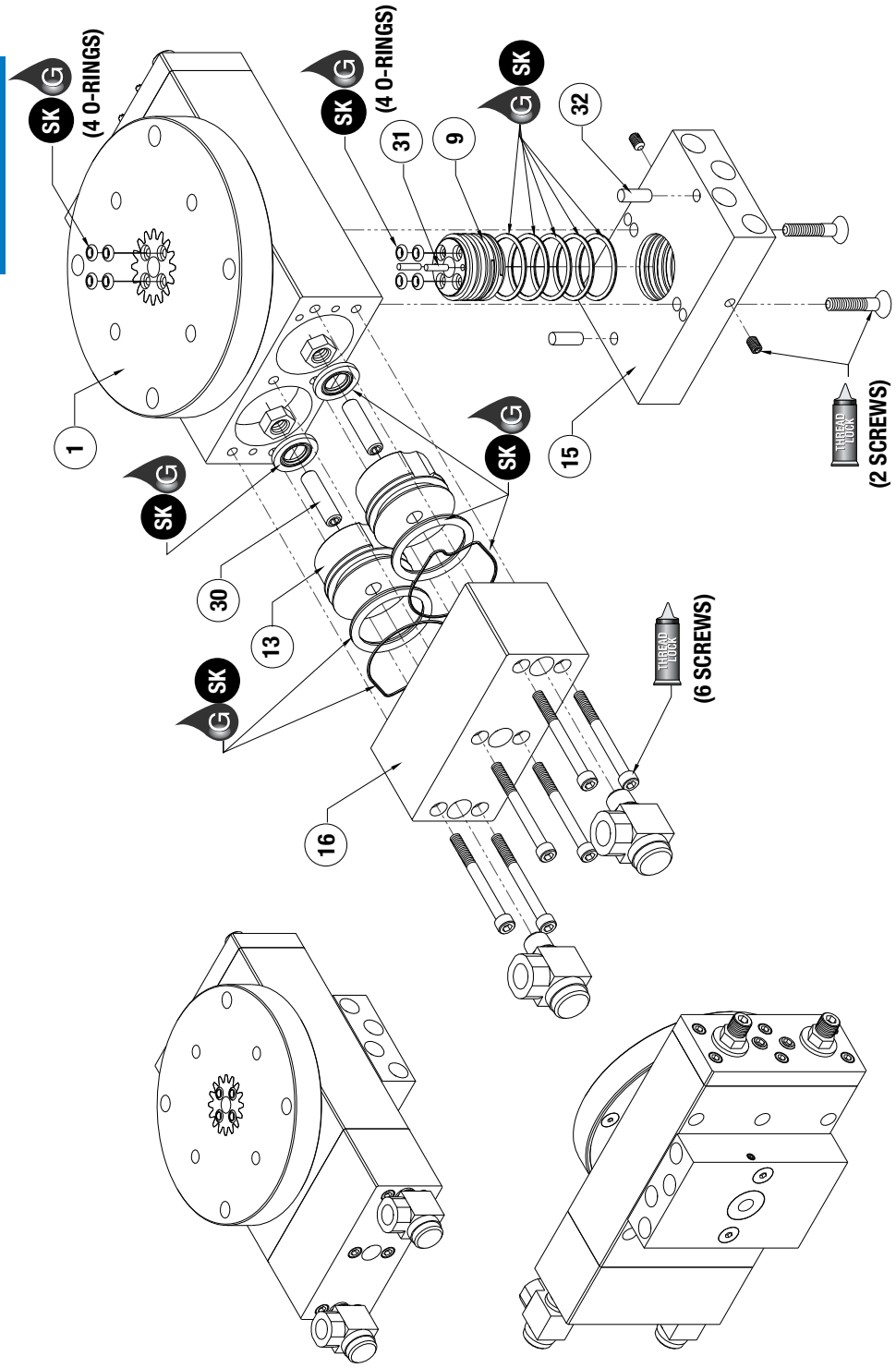
1) Rotate flange so piston rack stops on end stop install sensor as sho wn, pushing sensor in until it stops.

2) Tighten nut.

Note: Sensors need to be readjusted when end stops are adjusted.

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

RR-36 & 46 Options Exploded View



Item	Qty	Name
RR-36&46-S		
(Mid Position Stop Option)		
13	2	Piston, Midstop
16	1	Body, Midstop
30	2	Mid-Stop Adjustment Screws
RR-36&46-M		
(Rotary Manifold Option)		
09	1	Manifold,Rotary
15	1	Manifold
31	2	Dowel Pin
32	2	Dowel Pin

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Manifold Option
Assembly Procedure

1) Lubricate and install 8 small o-rings. (4 in the pinion, 4 in the rotary manifold body).
2) Install 5 large O-rings on the rotary manifold.
3) Press dowel pin into rotary manifold
4) Install rotary manifold in manifold body.
5) Attach manifold assembly to rotary actuator body.

Mid-Stop Option
Assembly Procedure

1) Lubricate and install o-rings.
2) Install mid-stop pistons, adjustment screws, seal washers, and hex nuts in rotary actuator body.
3) Attach mid-stop body to rotary actuator body.
4) Install flow controls.

Mid-Stop Adjustment Procedure

1) Remove mid-stop body from actuator base.
2) Remove the two mid-stop pistons from the mid-stop body and insert them into their respective cylinder bores in the actuator base.
3) Back off both mid-stop adjustment screws (#30) while pushing the mid-stop pistons firmly into the cylinder bores. The face of the pistons should seat against the actuator base. If not, then continue to back out the stop screws.
4) Turn the turntable to the desired position and advance the mid-stop adjustment screws until both screws touch the main piston faces
5) Re-attach the two mid-stop pistons to the mid-stop body and fasten mid-stop body back onto actuator base.

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection

Item	Qty	Name
RR-36&46-S		
(Mid Position Stop Option)		
13	2	Piston, Midstop
16	1	Body, Midstop
30	2	Mid-Stop Adjustment Screws
RR-36&46-M		
(Rotary Manifold Option)		
09	1	Manifold,Rotary
15	1	Manifold
31	2	Dowel Pin
32	2	Dowel Pin

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Valve 1:

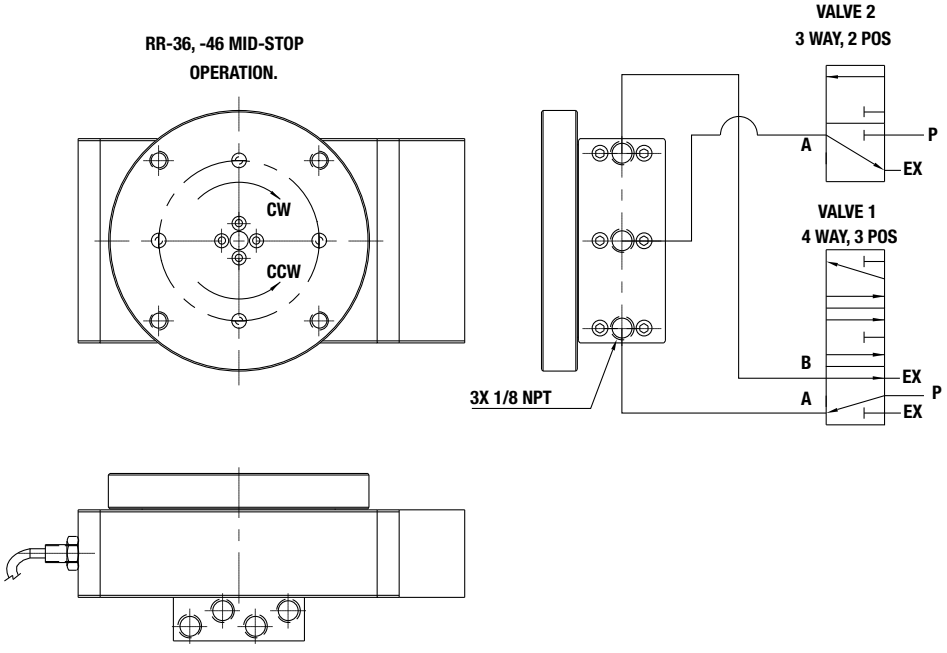
- Actuate Port A to Rotate CW.
- Actuate Port B to Rotate CCW.
- Neutral (Center) position when actuating Valve 2 for mid-position stop.

Valve 2:

Port A Open to Exhaust for Normal Operation.

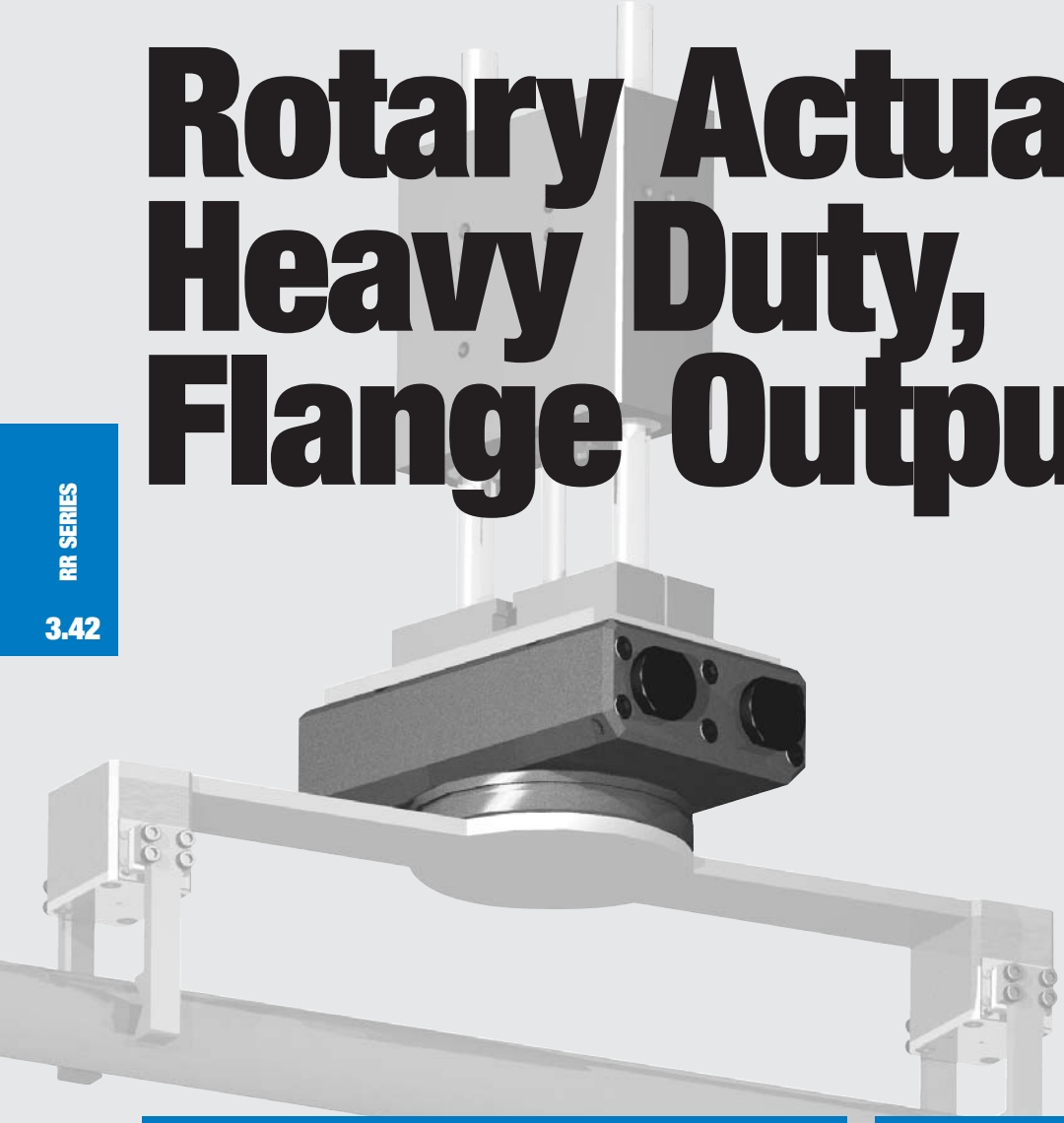
Actuate Port A for Mid-Position Stop.

Valve1 Must be in Neutral (Center) Position



SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

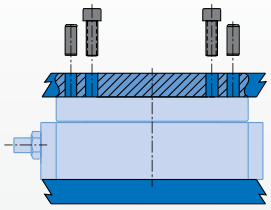
Rotary Actuators- Heavy Duty, Flange Output



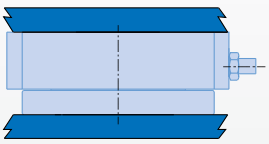
- **Tight spaces:** The "Ultra Thin" profile and bearing supported flange provide an extremely compact package for tight space applications. Payload can be connected directly to the flange without the need for extra bearing support.
- **Large Payload, High Torque:** The RR-55, RR-66, RR-76 are design for heavy-duty industrial and foundry applications
- **Precision applications:** Zero backlash, preloaded ball bearings, and slip fit dowel pins make this a very precise and repeatable rotary actuator.
- **Rotary Air Manifold** Eliminates twisting airlines.
- **Pneumatic/Hydraulic Operation:** The RR-76 can be used for either **pneumatic** or **hydraulic** operation.

Mounting Information:

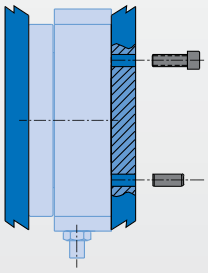
Mounts and operates in any orientation



Payload attaches to flange with screws and locates by using dowel pins



Unit can operate inverted with payload attached to the flange.



Body mounts with screws and locates with dowel pins for accuracy

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**3-7 bar**
Cylinder Type	**Dual Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

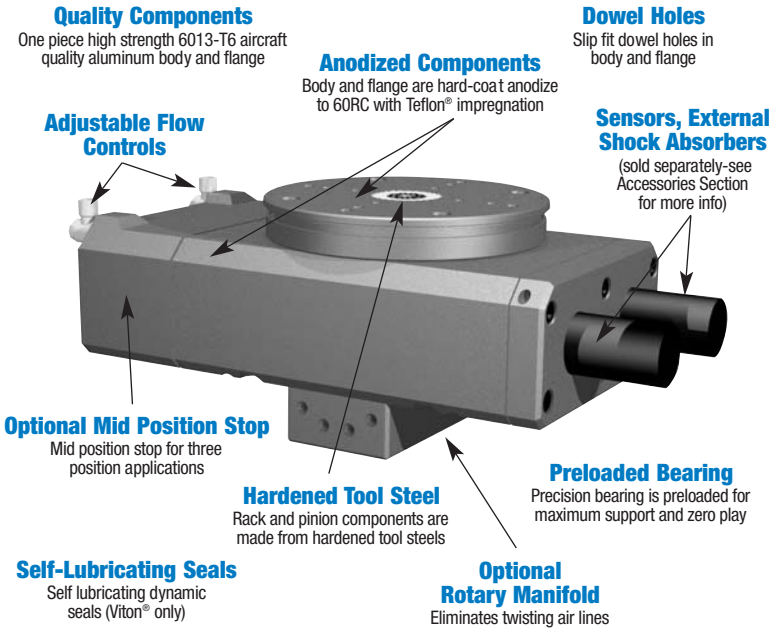
Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton Seals (optional)	**-20°~300° F**	**-30°~150° C**

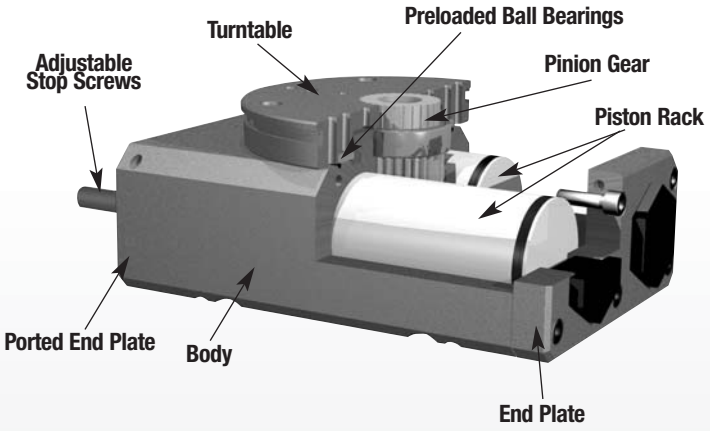
Maintenance Specifications†	
Expected Life	
with Shock Absorbers	**1 million cycles**
without Shock Absorbers	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

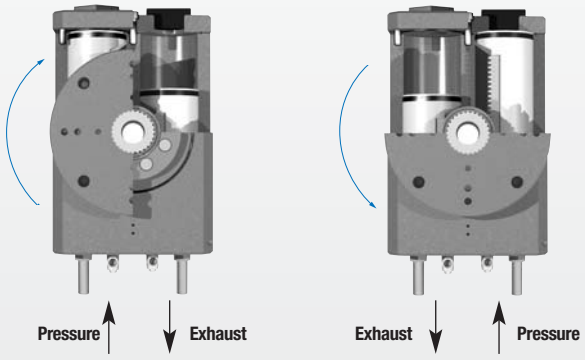
*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features



Operating Principle





- Air pressure supplied to both cylinders simultaneously using internal porting, drives the piston racks in opposite directions.
- The piston racks simultaneously drive the pinion gear which is attached to the flange.
- The flange is supported in the body by a preloaded ball bearing

Designed and manufactured in the USA

Style -RR Rotary Actuator

Size -56M

Style:	RR-56	RR-56M
Max. Payload:†	30 lbs.	13 Kg
Torque:	311 in/lbs	35 N-m
Weight:*	11.6 lbs.	5.3 Kg

†Max. payload based on **-A** shock option.
*Base unit.

See Pages **3.44**

Style -RR Rotary Actuator

Size -66M

Style:	RR-66	RR-66M
Max. Payload:†	75 lbs.	34 Kg
Torque:	728 in/lbs	82 N-m
Weight:*	26.8 lbs.	11.8 Kg

†Max. payload based on **-A** shock option.
*Base unit.

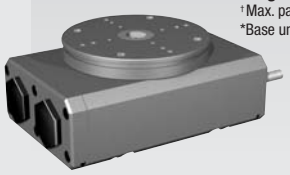
See Pages **3.46**

Style -RR Rotary Actuator

Size -76M

Style:	RR-76	RR-76M
Max. Payload:†	200 lbs.	91 Kg
Torque:	1900 in/lbs	215 N-m
Weight:*	53 lbs.	24 Kg

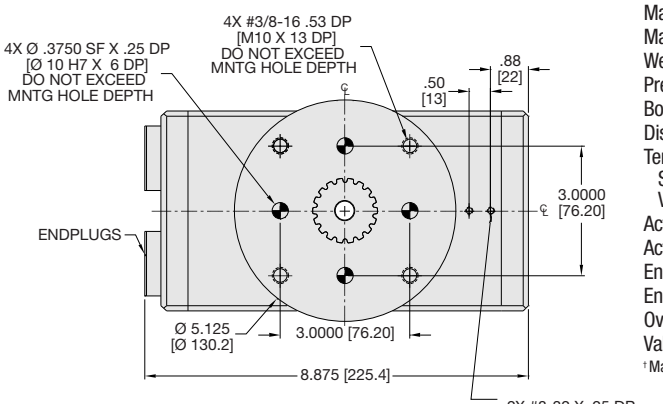
†Max. payload based on **-A** shock option.
*Base unit.

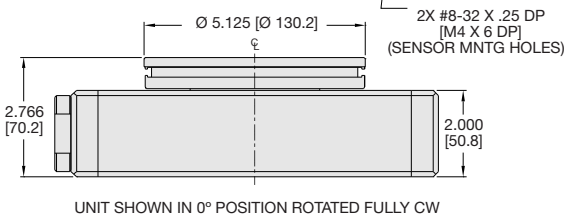


See Pages **3.52**

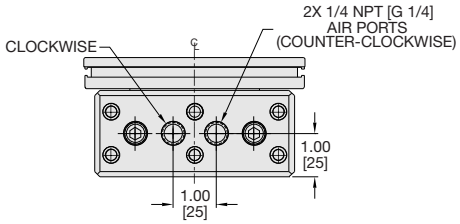
ROTARY ACTUATORS RR-56M
FLANGE OUTPUT SERIES BASE UNIT

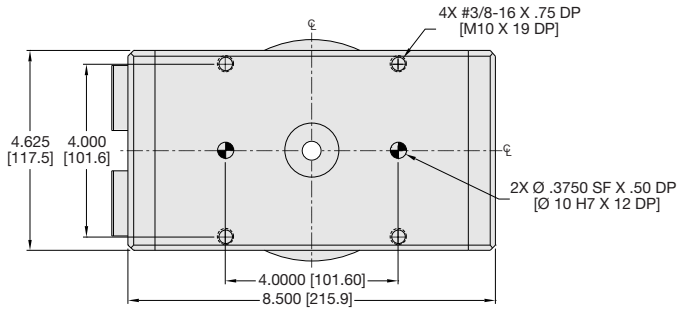
Robohand





UNIT SHOWN IN 0° POSITION ROTATED FULLY CW





Specifications	RR-56	RR-56M
Maximum Payload†	30 lbs.	13.6 Kg
Maximum Payload Inertia†	.2549 in.-lbs.-sec^2	.02880 N-m-sec^2
Maximum Rotation	180°	180°
Maximum Torque Mid-Stroke @ 100 PSI	311 in-lbs.	35 N-m
Maximum Torque End of Stroke @ 100 PSI	155 in-lbs.	17 N-m
Weight of Base Unit	11.6 lbs.	5.3 Kg
Pressure Range	40-100 psi	3-7 bar
Bore Ø (2X)	1.625 in.	41.27 mm
Displacement	9.77 in^3.	160.1 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton Seals	-20°~300° F	-30°~150° C
Actuation Time (180° @ 80PSI/5.5 Bar)	0.48 sec.	0.48 sec.
Actuation Time (90° @ 80PSI/5.5 Bar)	0.40 sec.	0.40 sec.
End Stop Repeatability	±0.02°	±0.02°
End Stop Adjustability	30°	30°
Over-Travel (each direction)	4°	4°
Valve required to actuate	4-way, 2-position	

† Max. payload based on **-A** shock option.

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

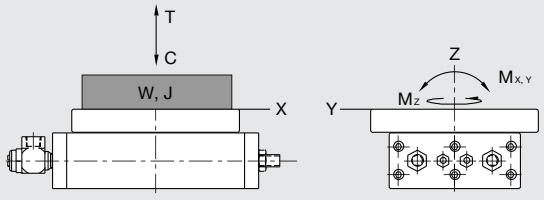
Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

Loading Information



Loading Capacity	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tension **T**	800 lbs	3559 N	160 lbs	712 N
Maximum Compression **C**	2000 lbs	8896 N	400 lbs	1779 N
Maximum Moment $\mathbf{M_X}$	1000 in.-lbs.	113 Nm	200 in.-lbs.	23 Nm
Maximum Moment $\mathbf{M_Y}$	1000 in.-lbs.	113 Nm	200 in.-lbs.	23 Nm
Maximum Payload **W**†			30 lbs.	13.64 Kg
Maximum Inertia **J** (with Shock Absorbers)†			0.2549 in-lb-sec^2	.0288 N-m-sec^2

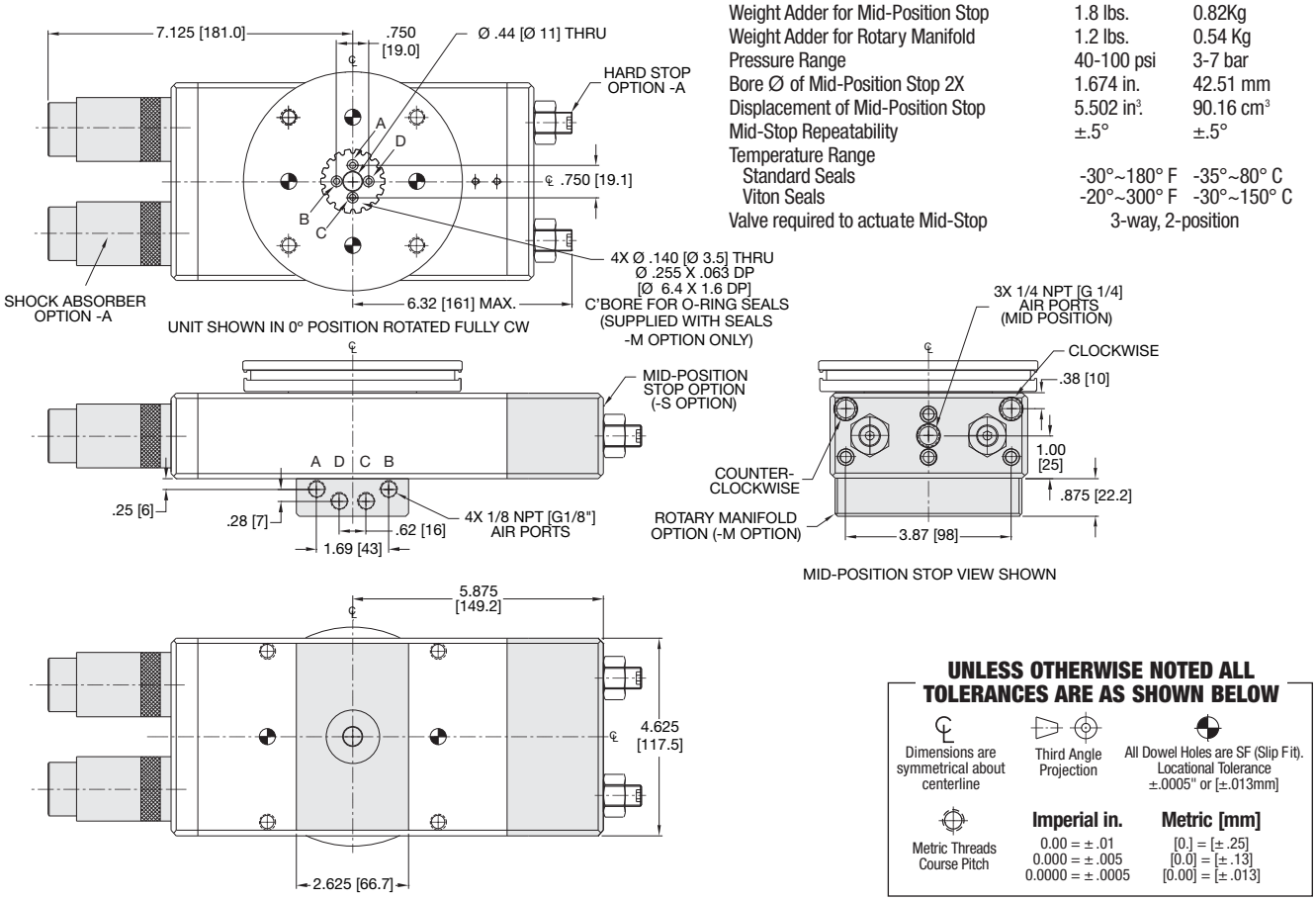
† Max. payload based on **-A** shock option.

How to Order: (Order Accessories separately from Basic Model)

RR-56 **See Next Page**

RR-56M ROTARY ACTUATOR OPTIONS -S, -M, OPTIONAL MID-STOP, ROTARY MANIFOLD

Specifications	RR-56	RR-56M
Weight (base unit)	11.6 lbs.	5.3 Kg
Weight Adder for Mid-Position Stop	1.8 lbs.	0.82Kg
Weight Adder for Rotary Manifold	1.2 lbs.	0.54 Kg
Pressure Range	40-100 psi	3-7 bar
Bore Ø of Mid-Position Stop 2X	1.674 in.	42.51 mm
Displacement of Mid-Position Stop	5.502 in^3.	90.16 cm^3
Mid-Stop Repeatability	±.5°	±.5°
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton Seals	-20°~300° F	-30°~150° C
Valve required to actuate Mid-Stop	3-way, 2-position	



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | METRIC | MID-STOP | ROTARY MANIFOLD

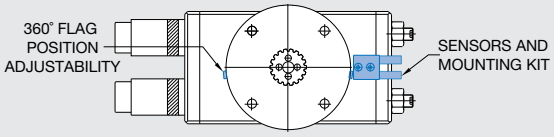
RR-56 M - [ ] - S - A - M - V

ROTATION (See below) | SHOCKS/STOPS | VITON SEALS

DEGREE OF ROTATION 45°,90°, 135° or 180°
(consult factory for intermediate degrees of rotation)

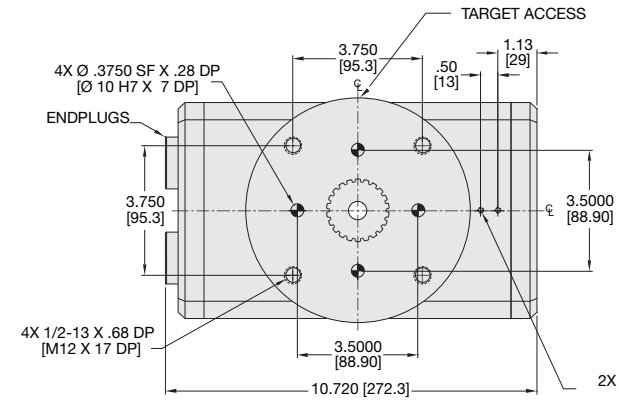
SENSOR ACCESSORIES	MODEL CODE	ORDER#	QTY/UNIT
Inductive Sensor Mounting Kit (Mounts 2 Sensors)		OSMK-075	1
Magneto Resistive Sensor Mounting Kit (Mounts 2 Sensors)		OSMK-069	1
NPN Inductive Sensor with Quick Disconnect*		OISN-011	1 or 2
PNP Inductive Sensor with Quick Disconnect*		OISP-011	1 or 2
NPN Magneto Resistive Sensor with Quick Disconnect*		OHSN-017	1 or 2
PNP Magneto Resistive Sensor with Quick Disconnect*		OHSP-017	1 or 2
Quick Disconnect 2M Cable Length*		CABL-010	1 or 2
Quick Disconnect 5M Cable Length*		CABL-013	1 or 2
PNEUMATIC ACCESSORIES			
1/4 NPT Flow Controls (Imperial Units Only)		VLVF-009	2
G1/4 BSPP Flow Controls (Metric Units Only)		VLVF-010	2
Standard Base Unit Seal Repair Kit		SLKT-124	1
Viton Base Unit Seal Repair Kit	-V	SLKT-124V	1
Standard Manifold Seal Repair Kit	-M	SLKT-126	1
Viton Manifold Seal Repair Kit	-M-V	SLKT-126V	1
Standard Mid-Stop Seal Repair Kit	-S	SLKT-127	1
Viton Mid-Stop Seal Repair Kit	-S-V	SLKT-127V	1
Standard Shock Seal Repair Kit	-A	SLKT-125	1
Viton Shock Seal Repair Kit	-A-V	SLKT-125V	1

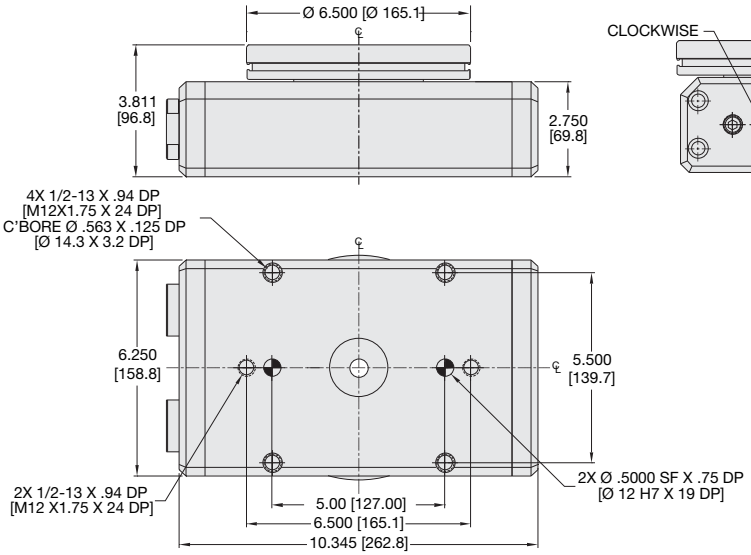
*Sensor and cable sold separately.

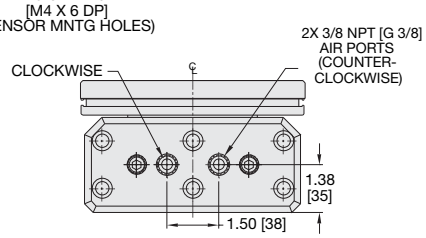


ROTARY ACTUATORS RR-66M
FLANGE OUTPUT SERIES BASE UNIT

Robohand







Specifications	RR-66	RR-66M
Maximum Payload†	75 lbs.	34 Kg
Maximum Payload Inertia†	1.0251 in.-lbs.-sec^2	.11584 N-m-sec^2
Maximum Rotation	180°	180°
Maximum Torque Mid-Position @ 100 PSI	728 in-lbs.	82 N-m
Maximum Torque End of Stroke @ 100 PSI	364 in-lbs.	41 N-m
Weight of Base Unit	26 lbs.	11.8 Kg
Pressure Range	40-100 psi	3-7 bar
Bore Ø (2X)	2.250 in.	57.15 mm
Displacement	22.8 in^3.	375 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton Seals	-20°~300° F	-30°~150° C
Actuation Time (180° @ 80PSI/5.5 Bar)	0.70 sec.	0.70 sec.
Actuation Time (90° @ 80PSI/5.5 Bar)	0.50 sec.	0.50 sec.
End Stop Repeatability	±0.02°	±0.02°
End Stop Adjustability	20°	20°
Over-Travel (each direction)	4°	4°
Valve required to actuate	4-way, 2-position	

† Max. payload based on **-A** shock option.

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

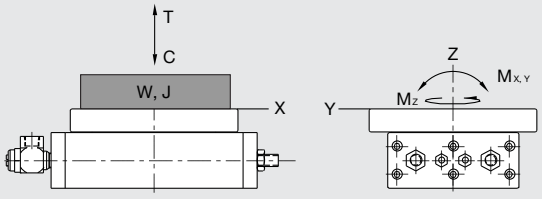
Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

Loading Information

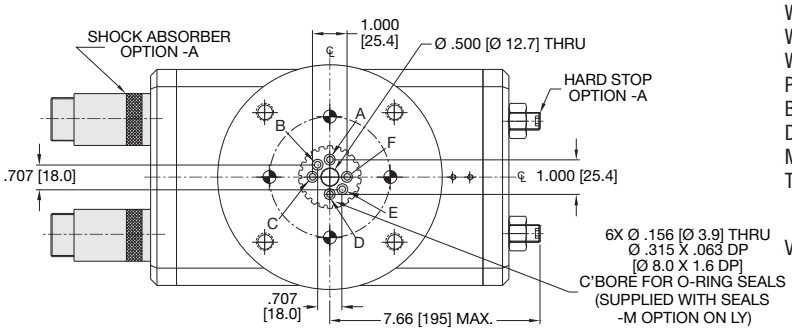


Loading Capacity	Static Imperial	Static Metric	Dynamic Imperial	Dynamic Metric
Maximum Tension **T**	1000 lbs	4448 N	200 lbs	890 N
Maximum Compression **C**	3500 lbs	15569 N	700 lbs	3114 N
Maximum Moment $\mathbf{M_X}$	2000 in.-lbs.	226 Nm	400 in.-lbs.	45 Nm
Maximum Moment $\mathbf{M_Y}$	2000 in.-lbs.	226 Nm	400 in.-lbs.	45 Nm
Maximum Payload **W**†			75 lbs.	34 Kg
Maximum Inertia **J** (with Shock Absorbers)†			1.025 in-lb-sec^2	.1158 N-m-sec^2

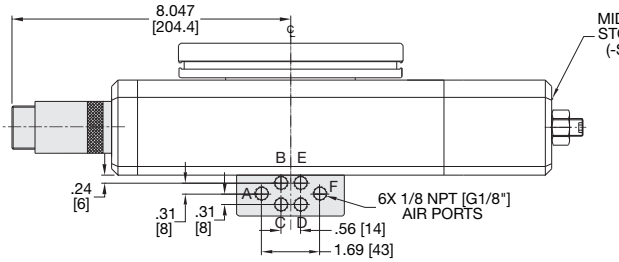
† Max. payload based on **-A** shock option.

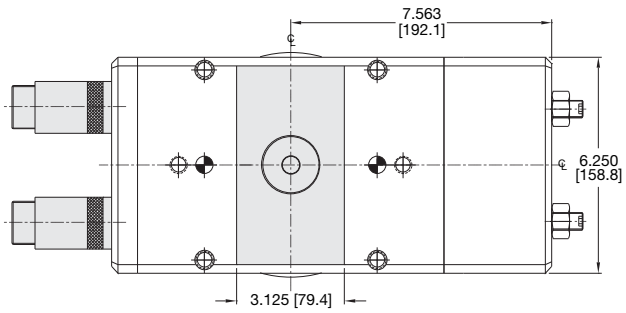
How to Order: (Order Accessories separately from Basic Model)

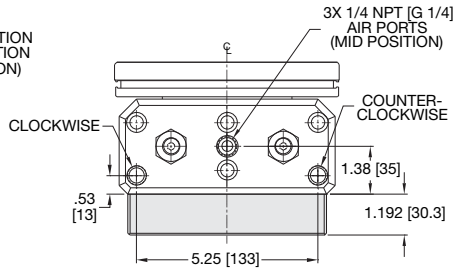
RR-66 **See Next Page**



UNIT SHOWN IN 0° POSITION ROTATED FULLY CW







MID-POSITION STOP VIEW SHOWN

Specifications	RR-66	RR-66M
Weight (base unit)	26 lbs.	11.8 Kg
Weight Adder for Mid-Position Stop	1.80 lbs.	0.82 Kg
Weight Adder for Rotary Manifold	0.80 lbs.	0.36 Kg
Pressure Range	40-100 psi	3-7 bar
Bore Ø of Mid-Position Stop 2X	2.375 in.	60.32 mm
Displacement of Mid-Position Stop	19.643 in^3.	321.89 cm^3
Mid-Stop Repeatability	±.5°	±.5°
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton Seals	-20°~300° F	-30°~150° C
Valve required to actuate Mid-Stop	3-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | METRIC | MID-STOP | ROTARY MANIFOLD

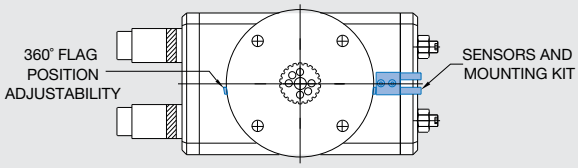
RR-66 M - [ ] - S - A - M - V

ROTATION (See below) | SHOCKS/STOPS | VITON SEALS

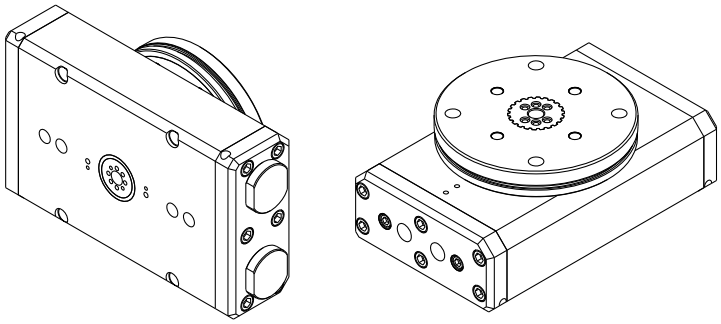
DEGREE OF ROTATION 45°,90°, 135° or 180°
(consult factory for intermediate degrees of rotation)

SENSOR ACCESSORIES	MODEL CODE	ORDER#	QTY/UNIT
Inductive Sensor Mounting Kit (Mounts 2 Sensors)		OSMK-075	1
Magneto Resistive Sensor Mounting Kit (Mounts 2 Sensors)		OSMK-069	1
NPN Inductive Sensor with Quick Disconnect*		OISN-011	1 or 2
PNP Inductive Sensor with Quick Disconnect*		OISP-011	1 or 2
NPN Magneto Resistive Sensor with Quick Disconnect*		OHSN-017	1 or 2
PNP Magneto Resistive Sensor with Quick Disconnect*		OHSP-017	1 or 2
Quick Disconnect 2M Cable Length*		CABL-010	1 or 2
Quick Disconnect 5M Cable Length*		CABL-013	1 or 2
PNEUMATIC ACCESSORIES			
3/8 NPT Flow Controls (Imperial Units Only)		VLVF-011	2
G3/8 BSPP Flow Controls (Metric Units Only)		VLVF-012	2
Standard Base Unit Seal Repair Kit		SLKT-128	1
Viton Base Unit Seal Repair Kit	-V	SLKT-128V	1
Standard Manifold Seal Repair Kit	-M	SLKT-130	1
Viton Manifold Seal Repair Kit	-M-V	SLKT-130V	1
Standard Mid-Stop Seal Repair Kit	-S	SLKT-131	1
Viton Mid-Stop Seal Repair Kit	-S-V	SLKT-131V	1
Standard with Shocks Seal Repair Kit	-A	SLKT-129	1
Viton with Shocks Seal Repair Kit	-A-V	SLKT-129V	1

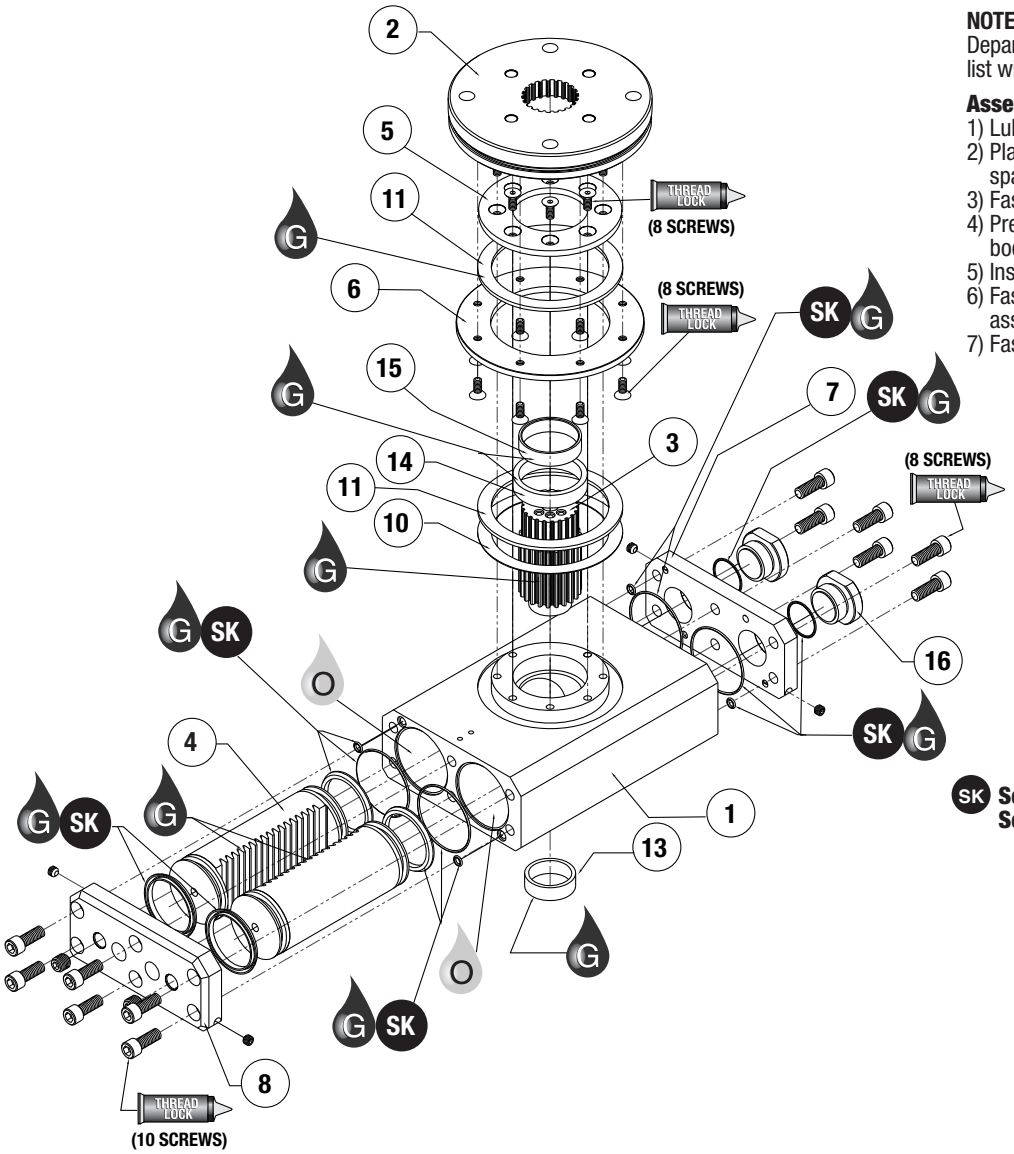
*Sensor and cable sold separately.



RR-56 & 66 Series Exploded View



Item	Qty	Name
01	1	Body, Main
02	1	Flange
03	1	Pinion
04	2	Rack, Piston
05	1	Ring, Inner Bearing
06	1	Ring, Outer Bearing
07	1	End Plate
08	1	Ported End Plate
10	1	Washer, Thrust
11	2	Bearing, Thrust
13	1	Bearing, Needle
14	1	Bearing, Needle
16	1	Cap



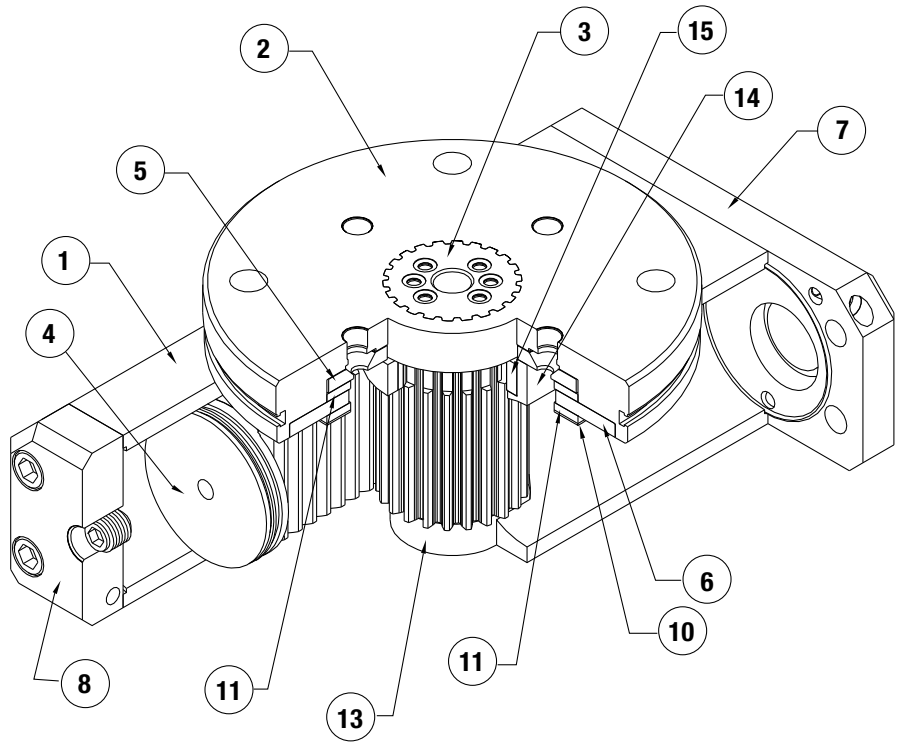
NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedure

1) Lubricate and install seals
2) Place needle bearings, outer ring and spacers into body
3) Fasten inner ring to body..
4) Press radial bearing into underside of body.
5) Install racks into body.
6) Fasten outer ring to turntable/pinion assembly.
7) Fasten end plates and plugs.

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection

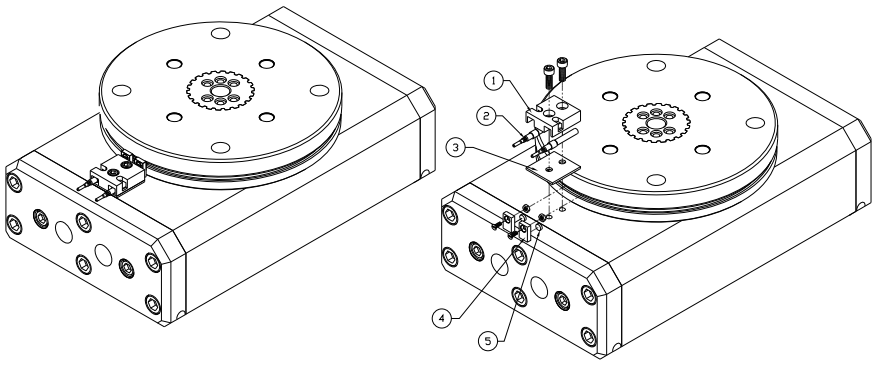


Item	Qty	Name
01	1	Body, Main
02	1	Flange
03	1	Pinion
04	2	Rack, Piston
05	1	Ring, Inner Bearing
06	1	Ring, Outer Bearing
07	1	End Plate
08	1	Ported End Plate
10	1	Washer, Thrust
11	2	Bearing, Thrust
13	1	Bearing, Needle
14	1	Bearing, Needle
16	1	Cap

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

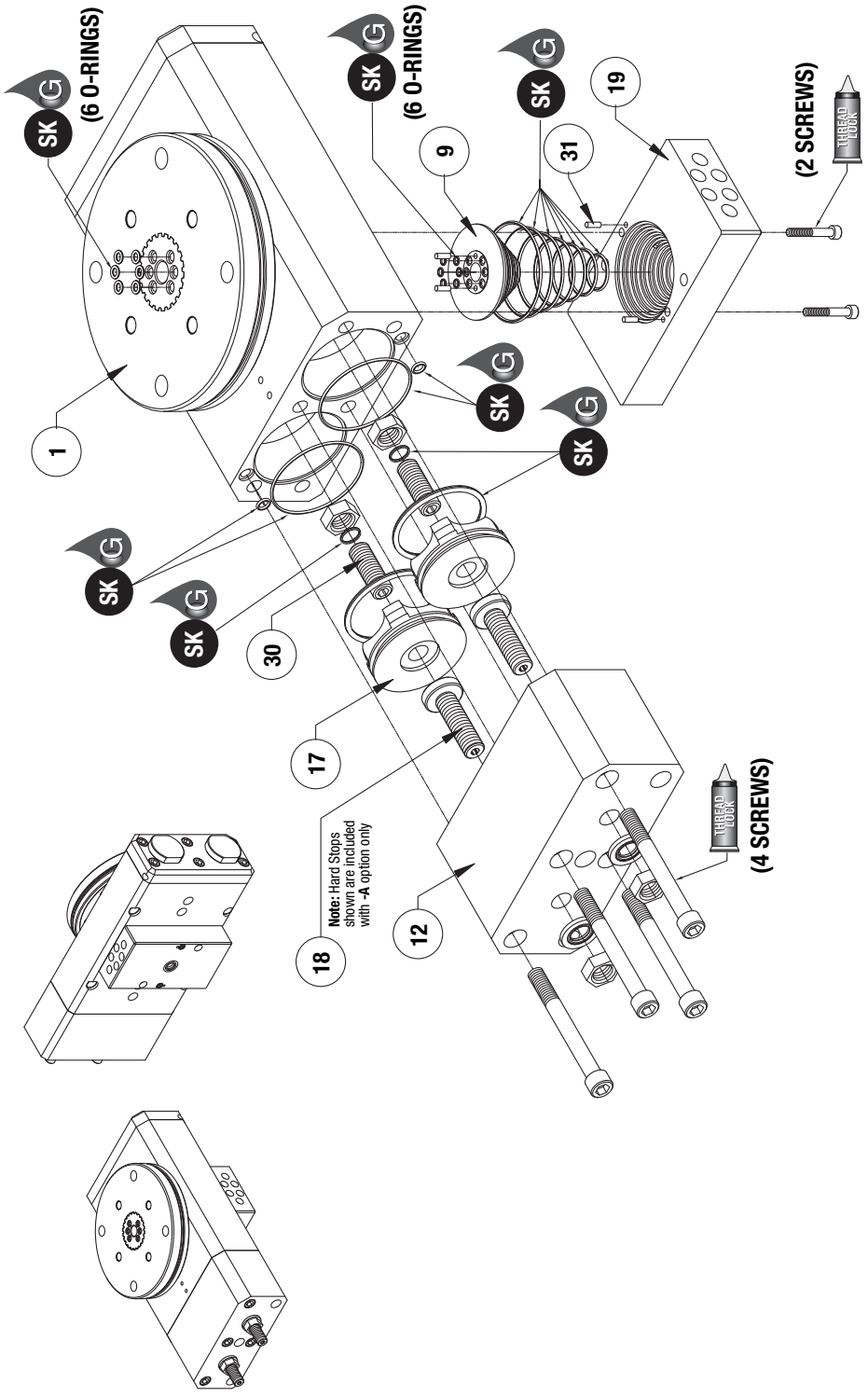
Accessory Installation & Adjustment Instructions

1) Install sensors and brackets as sho wn,
2) Install targets so when a turntable is a t each end of stroke, a target is aligned with a sensor



SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

RR-56 & 66 Options Exploded View



Item	Qty	Name
RR-56 & 66-S (Midstop)		
12	1	Body, Mid-Stop
17	2	Piston, Mid-Stop
30	2	Mid-Stop Adjustment Screws
RR-56-M (Rotary Manifold)		
09	1	Manifold, Rotary
19	1	Manifold
31	4	Dowel Pin

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Manifold Option Assembly Procedure

1) Lubricate and install 12 small o-rings. (6 in the pinion, 6 in the rotary manifold.
2) Install 7 O-rings on the rotary manifold.
3) Press 1/8" dia. dowel pin into manifold.
4) Install rotary manifold in manifold block.
5) Attach manifold block to rotary actuator body.

Mid-Stop Option Assembly Procedure

1) Lubricate and install o-rings.
2) Install mid-stop pistons, adjustment screws, seal washers, and hex nuts in rotary actuator body.
3) Attach mid-stop body to rotary actuator body.
4) Install flow controls.

Mid-Stop Adjustment Procedure

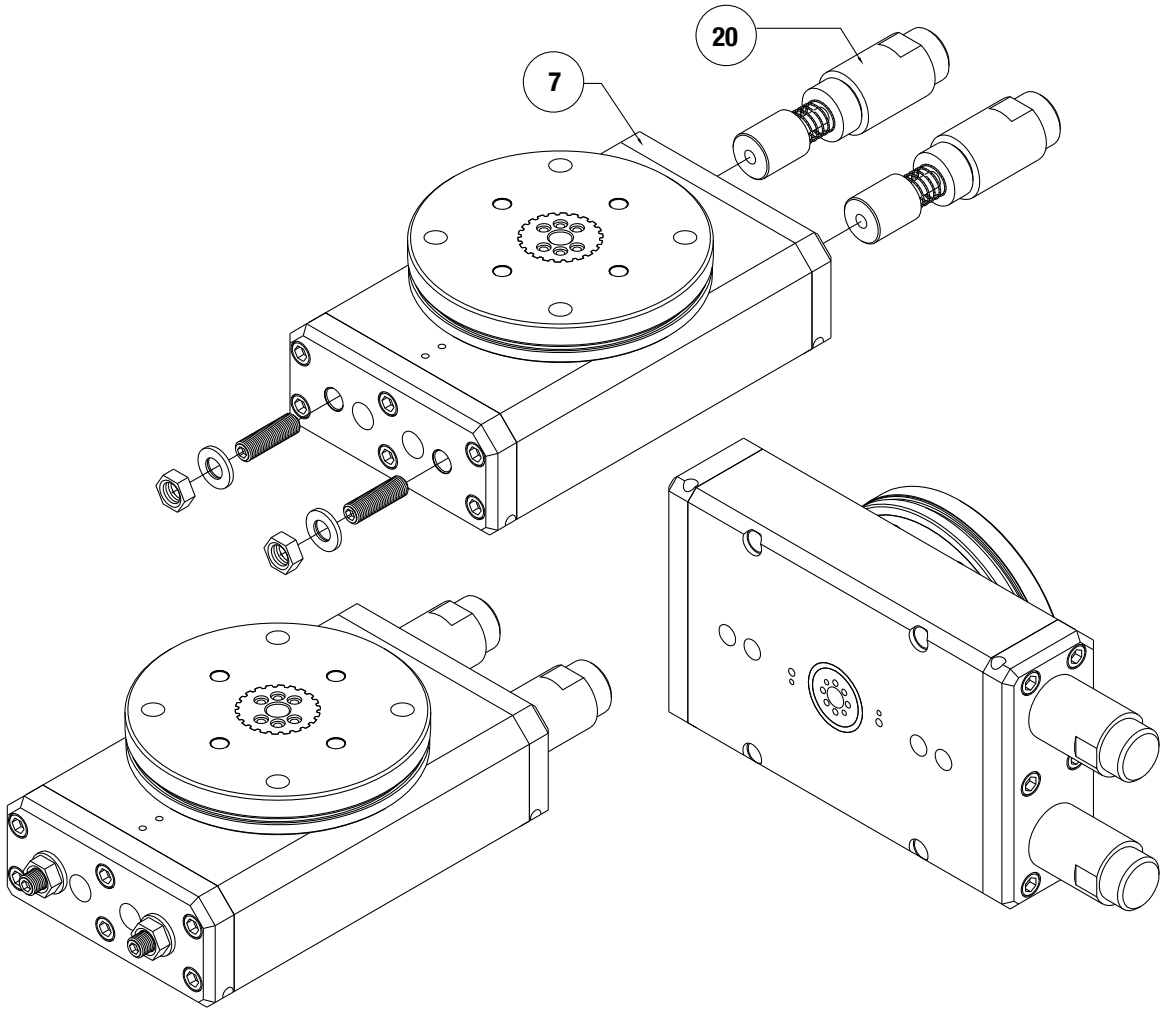
1) Remove mid-stop body from actuator base.
2) Remove the two mid-stop pistons from the mid-stop body and insert them into their respective cylinder bores in the actuator base.
3) Back off both mid-stop adjustment screws (#30) while pushing the mid-stop pistons firmly into the cylinder bores. the face of the pistons should seat against the actuator base. If not, then continue to back out the stop screws.
4) Turn the turntable to the desired position and advance the mid-stop adjustment screws until both screws touch the main piston faces.
5) Re-attach the two mid-stop pistons to the mid-stop body and fasten mid-stop body back onto actuator base.

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

Item	Qty	Name
7	1	Plate, End
20	2	Shock Absorber

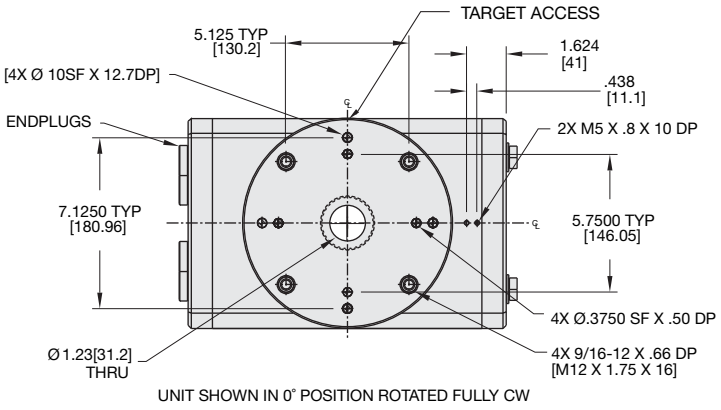
NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.



ROTARY ACTUATORS RR-76M
FLANGE OUTPUT SERIES BASE UNIT

Robohand

Note: Shock Absorbers "Option **-A**" are recommended for most applications. All specifications provided are with this option



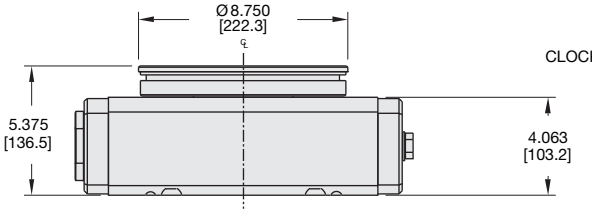
UNIT SHOWN IN 0° POSITION ROTATED FULLY CW

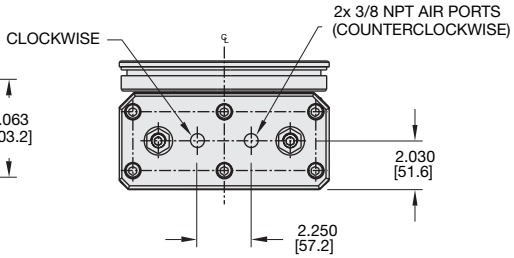
Specifications	**RR-76**	**RR-76M**
Maximum Payload†	200 lbs.	91 Kg
Maximum Payload Inertia†	4.95 in.-lbs.-sec^2	0.5596 N-m-sec^2
Maximum Rotation	180°	180°
Max. Torque Mid-Position @ 100 PSI	1900 in-lbs.	215 N-m
Max. Torque End of Stroke @ 100 PSI	950 in-lbs.	107 N-m
Weight of Base Unit	53 lbs.	24 Kg
Pressure Range	40-100 psi	3-7 bar
Bore Ø (2X)	3.250 in.	82.55 mm
Displacement	62.6 in^3.	1026 cm^3
Temperature Range - Viton® Seals	20°~300° F	-30°~150° C
Shock Absorber Temperature Max.	160° F	71° C
Actuation Time (180° @ 80PSI/5.5 Bar)	1.4 sec.	1.4 sec.
Actuation Time (90° @ 80PSI/5.5 Bar)	0.8 sec.	0.8 sec.
End Stop Repeatability	±0.02°	±0.02°
End Stop Adjustability*	20°	20°
Over-Travel (each direction)	4°	4°
Valve required to actuate	4-way, 2-position	

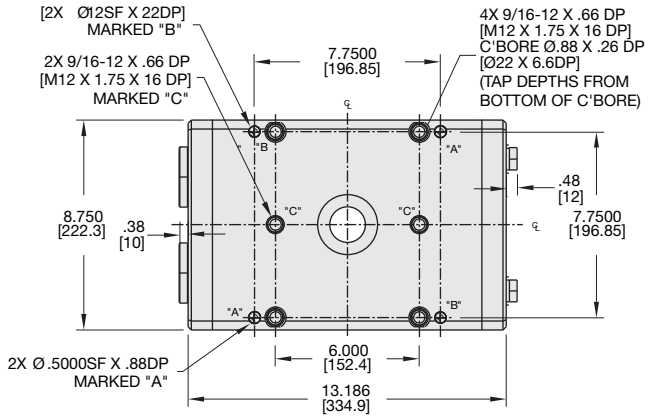
*Any adjustment of the End Stop Adjustment Screw must be accompanied by an equal adjustment of the Shock Absorbers to prevent bottoming of the pistons against the Shock Absorbers.

† Max. payload based on **-A** shock option.

Hydraulic Specifications	**RR-76**	**RR-76M**
Actuation Time (180° @ 80PSI/5.5 Bar)	4.8 sec.	4.8 sec.
Actuation Time (90° @ 80PSI/5.5 Bar)	2.4 sec.	2.4 sec.
Mid Stop Actuation Time (80PSI/5.5 Bar)	4.1 sec.	4.1 sec.







UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

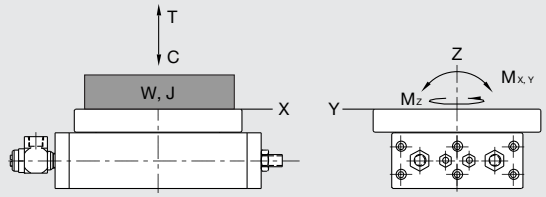
Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	**Metric [mm]**
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

Loading Information

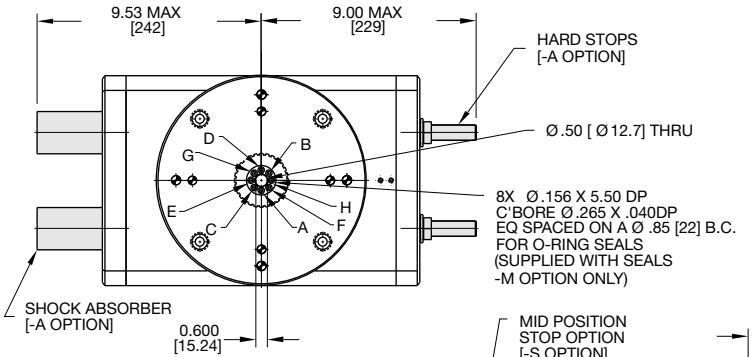


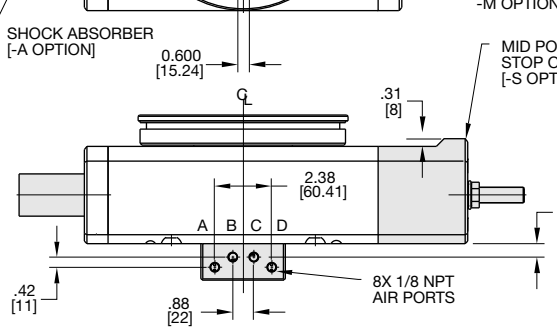
Loading Capacity	**Static** Imperial	Metric	**Dynamic** Imperial	Metric
Maximum Tension **T**	2000 lbs	8896 N	1000 lbs	4448 N
Maximum Compression **C**	4500 lbs	20017 N	2000 lbs	8896 N
Maximum Moment $\mathbf{M_X}$	4000 in.-lbs.	452 Nm	2000 in.-lbs.	226 Nm
Maximum Moment $\mathbf{M_Y}$	4000 in.-lbs.	452 Nm	2000 in.-lbs.	226 Nm
Maximum Payload **W**†			200 lbs.	91 Kg
Maximum Inertia **J**†			4.952 in-lb-sec^2	0.5596 N-m-sec^2

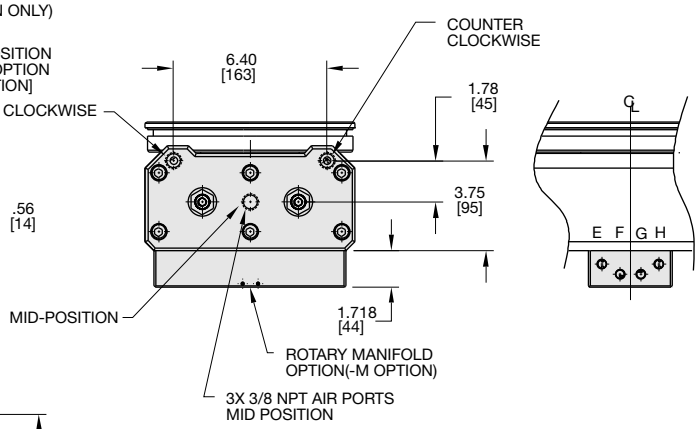
† Max. payload based on **-A** shock option.

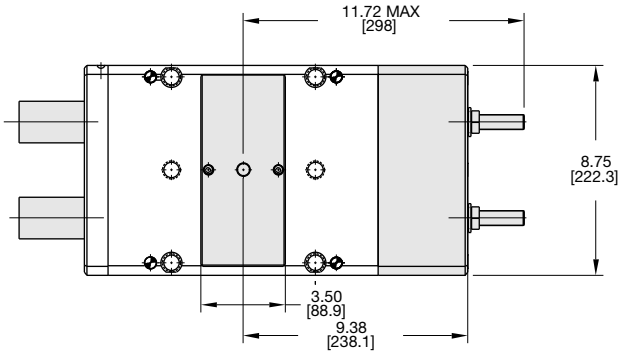
How to Order: (Order Accessories separately from Basic Model)

RR-76 **See Next Page**









Specifications	RR-76	RR-76M
Weight (Base Unit)	53 lbs.	24 Kg
Weight Adder for Mid-Position Stop	8.3 lbs.	3.8 Kg
Weight Adder for Rotary Manifold	4.2 lbs.	2.0 Kg
Mid-Stop Torque @ 100psi	890 in-lb	100.5 N-m
Pressure Range	40-100 psi	3-7 bar
Bore Ø of Mid-Position Stop 2X	3.375 in.	85.7 mm
Displacement of Mid-Position Stop	54 in^3.	885 cm^3
Temperature Range - Viton® Seals	-20°~300° F	-30°~150° C
Mid-Stop Repeatability	±0.5°	±0.5°
Valve required to actuate Mid Stop	3-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

- Dimensions are symmetrical about centerline
- Third Angle Projection
- All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
- Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | METRIC | MID-STOP | ROTARY MANIFOLD

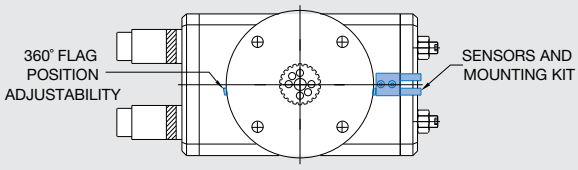
RR-76 M - [ ] - S - A - M - H

ROTATION (See below) | SHOCKS/STOPS | HYDRAULIC

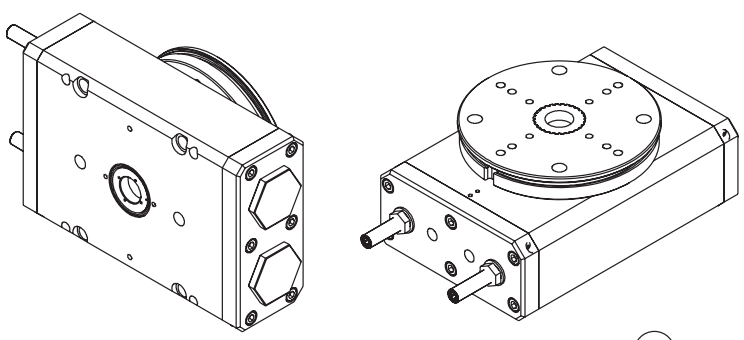
DEGREE OF ROTATION 45°, 90°, 135° or 180°
(consult factory for intermediate degrees of rotation)

SENSOR ACCESSORIES	MODEL CODE	ORDER#	QTY/UNIT
Inductive Sensor Mounting Kit (Mounts 2 Sensors)		OSMK-096	1
NPN Inductive Sensor with Quick Disconnect*		OISN-017	1 or 2
PNP Inductive Sensor with Quick Disconnect*		OISP-017	1 or 2
Quick Disconnect 2M Cable Length*		CABL-014	1 or 2
Quick Disconnect 5M Cable Length*		CABL-018	1 or 2
PNEUMATIC ACCESSORIES			
3/8 NPT Flow Controls (Imperial Units Only)		VLVF-011	2
G3/8 BSPP Flow Controls (Metric Units Only)		VLVF-012	2
Adapter 1/8 NPT to G 1/8		PLFT-028	1
Adapter 3/8 NPT to G 3/8		PLFT-029	1
Standard Base Unit Seal Repair Kit		SLKT-167V	1
Standard Manifold Seal Repair Kit	-M	SLKT-169V	1
Standard Mid-Stop Seal Repair Kit	-S	SLKT-168V	1
Standard with Shocks Seal Repair Kit	-A	SLKT-179	1
Hydraulic Seal Repair Kit (Base)	-H	SLKT-177H	1
Hydraulic Seal Repair Kit (Mid Stop)	-S	SLKT-178H	1

*Sensor and cable sold separately.



RR-76 Series Exploded View

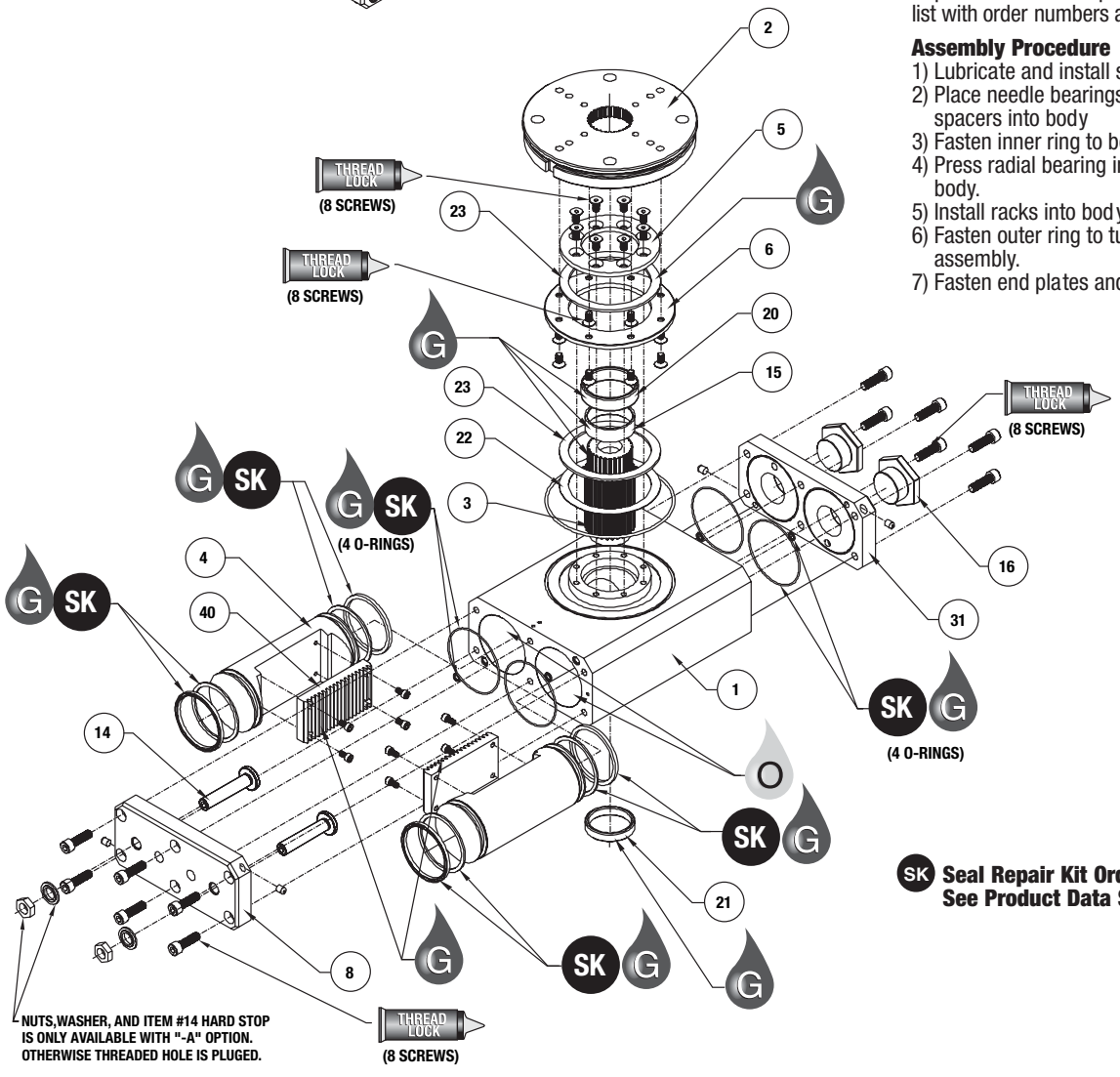


Item	Qty	Name
01	1	Body, Main
02	1	Flange
03	1	Pinion
04	2	Rack, Piston
05	1	Ring, Inner Bearing
06	1	Ring, Outer Bearing
08	1	End Plate
16	1	Plug
20	1	Bearing, Needle
21	1	Bearing, Needle
22	1	Washer, Thrust
23	2	Bearing, Thrust
31	1	Ported End Plate

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

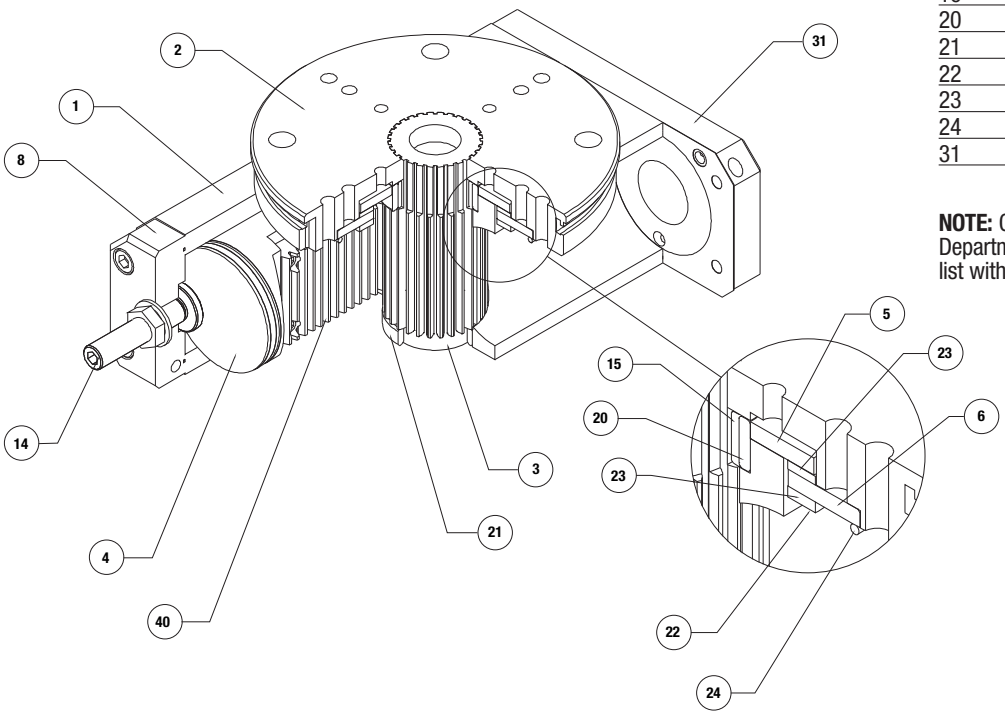
Assembly Procedure

1) Lubricate and install seals
2) Place needle bearings, outer ring and spacers into body
3) Fasten inner ring to body..
4) Press radial bearing into underside of body.
5) Install racks into body.
6) Fasten outer ring to turntable/pinion assembly.
7) Fasten end plates and plugs.



SK Seal Repair Kit Order #'s See Product Data Sheets

SK	THREAD LOCK	KRYTOX	O	G	GLUE	
Seal Kit Items	Thread Locker	Krytox™ Lubricant	Lightweight Machine Oil	Teflon® Based Grease	Super Bonder	Third Angle Projection

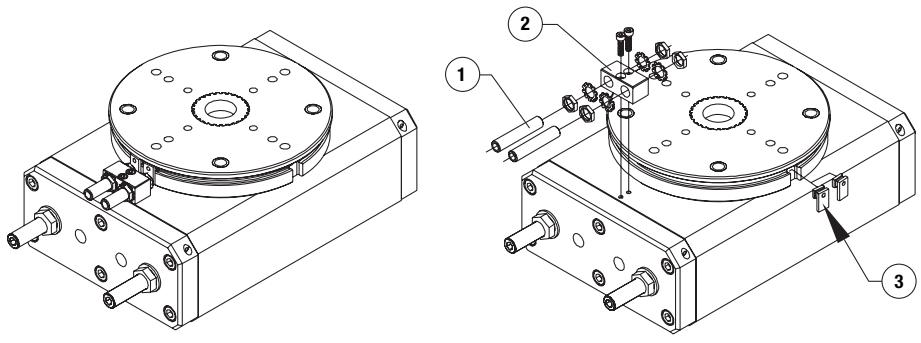


Item	Qty	Name
01	1	Body, Main
02	1	Flange
03	1	Pinion
04	2	Rack, Piston
05	1	Ring, Inner Bearing
06	1	Ring, Outer Bearing
07	1	End Plate
16	1	Plug
20	1	Bearing, Needle
21	1	Bearing, Needle
22	1	Washer, Thrust
23	2	Bearing, Thrust
24	1	O-Ring
31	1	Ported End Plate

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

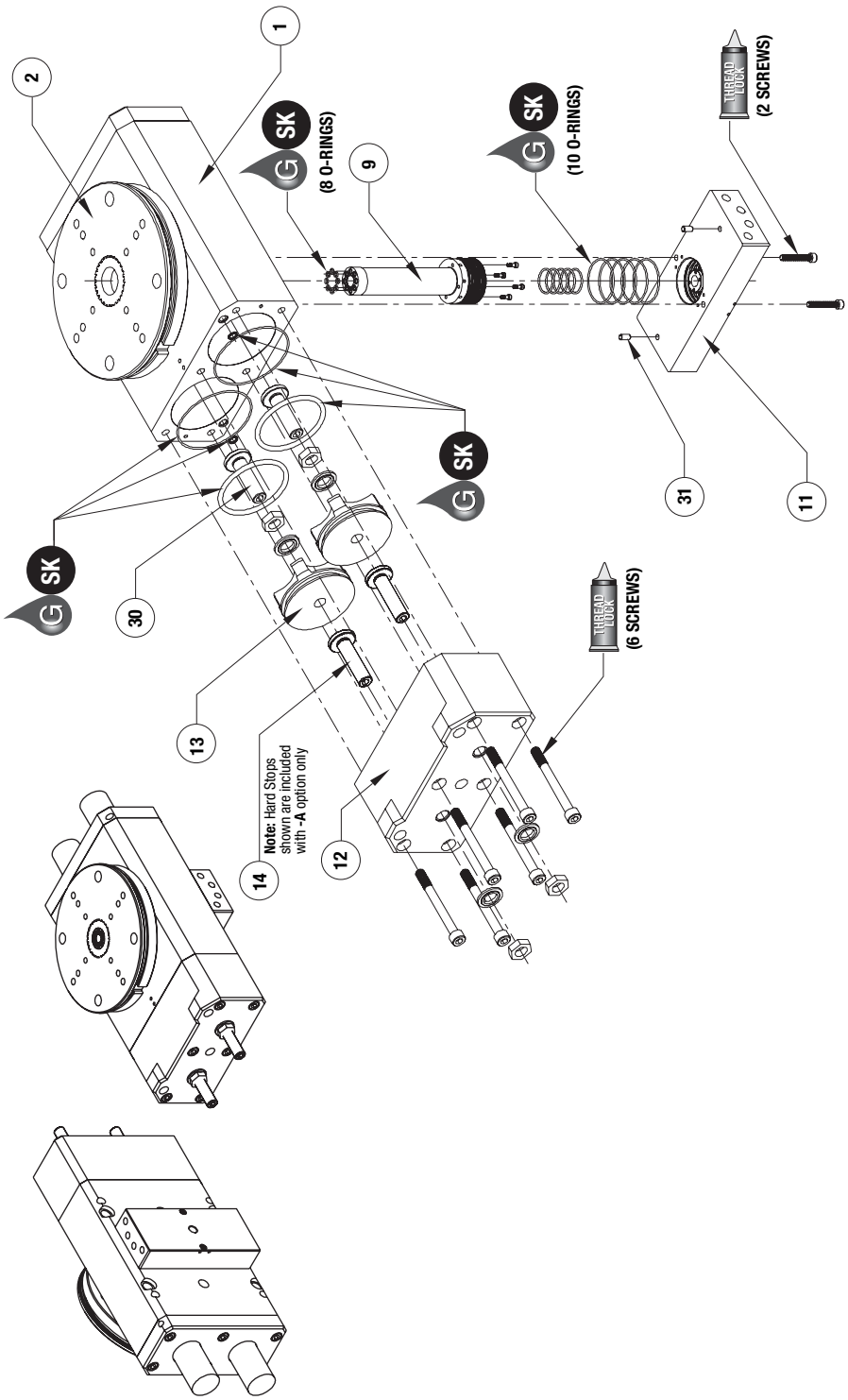
Accessory Installation & Adjustment Instructions

1) Install sensors and brackets as sho wn,
2) Install targets so when a turntable is a t each end of stroke, a target is aligned with a sensor



SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection

RR-76 Options Exploded View



Item	Qty	Name
RR-56 & 66-S (Midstop)		
12	1	Body, Mid-Stop
13	2	Piston, Mid-Stop
30	2	Mid-Stop Adjustment Screws
RR-56-M (Rotary Manifold)		
09	1	Manifold, Rotary
11	1	Manifold
31	4	Dowel Pin

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Manifold Option Assembly Procedure

1) Lubricate and install 10 small O-rings.
2) Press 1/8" dia. dowel pin into manifold.
3) Install rotary manifold into pinion with shoulder screws.
4) Attach manifold block to rotary actuator body.

Mid-Stop Option Assembly Procedure

1) Lubricate and install o-rings.
2) Install mid-stop pistons, adjustment screws, seal washers, and hex nuts in rotary actuator body.
3) Attach mid-stop body to rotary actuator body.
4) Install flow controls.

Mid-Stop Adjustment Procedure

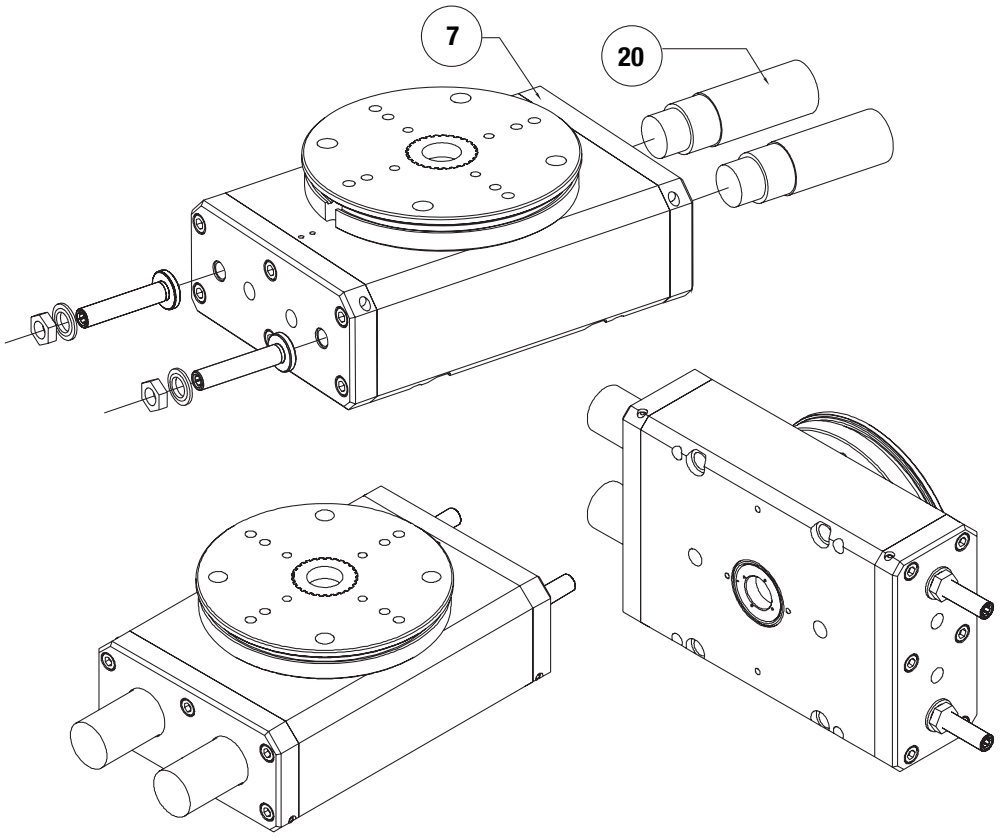
1) Remove mid-stop body from actuator base.
2) Remove the two mid-stop pistons from the mid-stop body and insert them into their respective cylinder bores in the actuator base.
3) Back off both mid-stop adjustment screws (#30) while pushing the mid-stop pistons firmly into the cylinder bores. the face of the pistons should seat against the actuator base. If not, then continue to back out the stop screws.
4) Turn the turntable to the desired position and advance the mid-stop adjustment screws until both screws touch the main piston faces.
5) Re-attach the two mid-stop pistons to the mid-stop body and fasten mid-stop body back onto actuator base.

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

Item	Qty	Name
7	1	Plate, End
20	2	Shock Absorber

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.



DESIGN NOTES

Linear Motion Slides

DLB
DIRECTCONNECT

Internally Powered Series

DESIGN ADVANTAGES -B
- Built-in Repairable Cylinder
- Compact for Extremely Small Spaces
- Shortest Strokes
- Very Rigid

See Page 4.8

DESIGN ADVANTAGES -L
- Built-in Repairable Cylinder
- Longer Strokes in Compact Space Saving Package
- Very Rigid

DLB
DIRECTCONNECT

Externally Powered Series

DESIGN ADVANTAGES -T
- Disposable Air Cylinder with Sensor Magnet
- Low Cost
- Long Strokes
- Carefree Maintenance

See Page 4.20

DESIGN ADVANTAGES -A
- Disposable Air Cylinder with Adjustable Air Cushions and Sensor Magnet
- Inexpensive Alternative to Shock Absorbers for Light Payloads

DESIGN ADVANTAGES -N
- NFPA or VDMA Style Cylinders with Adjustable Air Cushions and Sensor Magnet
- Inexpensive Alternative to Shock Absorbers for Light Payloads

DESIGN ADVANTAGES -R
- Position Control in Event of Loss of Air Pressure
- Safety Locking Feature
- VDMA Style Locking Cylinder with Adjustable Air Cushions and Sensor Magnet
- Exhaust Air (from Locking Mechanism) may be Plumbed Away for Contaminant Free Operation

DESIGN ADVANTAGES -U
- Customer Supplies Cylinder. NFPA or VDMA Mounting Kits Available
- Least Expensive
- Design Flexibility

DLT
DIRECTCONNECT

Internally Powered Series

DESIGN ADVANTAGES -B, -E
- Built-in Repairable Cylinder
- Compact for Extremely Small Spaces
- Can Be Used as a Lift Table (**-B**)
- Greater Shaft Support (**-E**)
- Shortest Strokes • Lightest Weight

See Page 4.32

DESIGN ADVANTAGES -L
- Built-in Repairable Cylinder • Longer Strokes
- Compact Design for Small Spaces

DLT
DIRECTCONNECT

Externally Powered Series

DESIGN ADVANTAGES -T
- Disposable Air Cylinder with Sensor Magnet
- Low Cost
- Long Strokes
- Carefree Maintenance

See Page 4.56

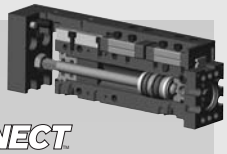
DESIGN ADVANTAGES -A
- Disposable Air Cylinder with Adjustable Air Cushions and Sensor Magnet
- Inexpensive Alternative to Shock Absorbers for Light Payloads

DESIGN ADVANTAGES -N
- NFPA or VDMA Style Cylinders with Adjustable Air Cushions and Sensor Magnet
- Adjustable Air Cushions Replace Shock Absorbers for Light Payloads

DESIGN ADVANTAGES -R
- Position Control in Event of Loss of Air Pressure
- Safety Locking Feature
- VDMA Style Locking Cylinder with Adjustable Air Cushions and Sensor Magnet
- Exhaust Air (from Locking Mechanism) may be Plumbed Away for Contaminant Free Operation

DESIGN ADVANTAGES -U
- Customer Supplies Cylinder. NFPA or VDMA Mounting Kits Available
- Least Expensive
- Design Flexibility

NEW



DLM
DIRECTCONNECT

Mini Ball Rail Slide Series

See Page 4.70

DESIGN ADVANTAGES
- Multiple Air Port Positions
- Manifold Air Porting
- Retract and extend stroke adjustments for precise positioning with infinite stroke adjustability
- Double Bearing Option for greater load and moment capacity
- Multiple DIRECTCONNECT Mounting Locations
- Thru Mounting on tool plate and body

Robohand Slide Product Selector

Model #	Type of Slide: Base Slide	Type of Slide: Thruster Slide	Type of Slide: Lift/Block Thruster	Maximum Thrust Force Range: 0 - 25 lbs.	Maximum Thrust Force Range: 25 - 50 lbs.	Maximum Thrust Force Range: 50 - 100 lbs.	Maximum Thrust Force Range: 100 - 150 lbs.	Maximum Thrust Force Range: 150 - 200 lbs.	Maximum Thrust Force Range: 200 - 300 lbs.	Maximum Thrust Force Range: 300+ lbs.	Maximum Stroke: 0 - 2 in.	Maximum Stroke: 2 - 4 in.	Maximum Stroke: 4 - 6 in.	Maximum Stroke: 6 - 8 in.	Maximum Stroke: 8 - 10 in.	Maximum Stroke: 10 - 12 in.	Maximum Stroke: 12 - 14 in.	Maximum Stroke: 14 - 16 in.	Maximum Stroke: 16 - 18 in.	Maximum Stroke: 18 - 20 in.	Maximum Stroke: 20 - 22 in.	Maximum Stroke: 22 - 24 in.	Maximum Stroke: 24 in. +	Maximum Payload: 0 - 10 lbs.	Maximum Payload: 10 - 25 lbs.	Maximum Payload: 25 - 50 lbs.	Maximum Payload: 50 - 100 lbs.	Maximum Payload: 100 - 150 lbs.	Maximum Payload: 150 lbs. +	Operating Pressure: 20 - 100 psi	Operating Pressure: 40 - 100 psi	Cylinder Type: Internal (Repairable)	Cylinder Type: External (Replaceable)	Cylinder Type: External (ISO)	Cylinder Type: External (NFPA)	Cylinder Type: External (VDMA)	Cylinder Type: External (VDMA) Locking	Cylinder Type: Customer Supplied	Bearings: Preloaded Ball Bushing	Bearings: Composite Bushings	Bearings: Roller Bearings	Bearings: Bronze Bushings	Inductive Sensors	Magneto Resistive Sensors	Shock Absorbers w/Stops	Bumpers and Collars	Independent End Stops	Air Cushioned Cylinder	Telescopic Airlines
BASE SLIDE - INTERNALLY POWERED - SHORT BODY																																													
DLB-10-B	●			■							■													■	■				●	●							●	●			●		●		●
DLB-12-B	●			■	■						■													■	■	■			●	●							●	●			●		●		●
DLB-16-B	●			■	■						■	■												■	■	■	■		●	●							●	●			●		●		●
DLB-20-B	●			■	■	■					■	■	■											■	■	■	■		●	●							●	●			●		●		●
DLB-25-B	●			■	■	■					■	■	■	■										■	■	■	■	■	●	●							●	●			●		●		●
BASE SLIDE - INTERNALLY POWERED - LONG BODY																																													
DLB-10-L	●			■							■	■												■	■				●	●							●	●			●		●		●
DLB-12-L	●			■	■						■	■												■	■	■			●	●							●	●			●		●		●
DLB-16-L	●			■	■						■	■	■											■	■	■	■		●	●							●	●			●		●		●
DLB-20-L	●			■	■	■					■	■	■											■	■	■	■		●	●							●	●			●		●		●
DLB-25-L	●			■	■	■					■	■	■	■										■	■	■	■	■	●	●							●	●			●		●		●
BASE SLIDE-EXTERNALLY POWERED																																													
DLB-10-T, A, N, U	●			■							■	■	■	■	■	■								■	■				●	●		●	●	●		●	●	●		●		●	●	●
DLB-12-T, A, N, U	●			■	■						■	■	■	■	■	■	■	■	■					■	■	■			●	●		●	●	●		●	●	●		●		●	●	●
DLB-16-T, A, N, U	●			■	■						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			●	●		●	●	●		●	●	●		●		●	●	●
DLB-20-T, A, N, R, U	●			■	■	■					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		●	●		●		●	●	●	●	●		●	●	●		●	●	●
DLB-25-T, A, N, R, U	●			■	■	■					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	●	●		●		●	●	●	●	●		●	●	●		●	●	●
THRUSTER SLIDE - INTERNALLY POWERED - SHORT BODY																																													
DLT-06-B, E		●	●	■							■													■	■				●	●							●				●	●	●		
DLT-08-B, E		●	●	■							■	■												■	■				●	●							●				●	●	●		
DLT-10-B, E		●	●	■							■	■	■											■	■	■			●	●							●	●			●	●	●		●
DLT-12-B, E		●	●	■	■						■	■	■	■										■	■	■	■		●	●							●	●			●	●	●		●
DLT-16-B, E		●	●	■	■	■					■	■	■	■	■									■	■	■	■		●	●							●	●			●	●	●		●
DLT-20-B, E		●	●	■	■	■					■	■	■	■	■	■								■	■	■	■		●	●							●	●			●	●	●		●
DLT-25-B, E		●	●	■	■	■					■	■	■	■	■	■	■							■	■	■	■	■	●	●							●	●			●	●	●		●
THRUSTER SLIDE - INTERNALLY POWERED -LONG BODY																																												
DLT-06-L		●		■							■													■	■				●	●							●				●	●	●		
DLT-08-L		●		■							■	■												■	■				●	●							●				●	●	●		
DLT-10-L		●		■							■	■	■											■	■	■			●	●							●	●			●	●	●		●
DLT-12-L		●		■	■						■	■	■	■										■	■	■	■		●	●							●	●			●	●	●		●
DLT-16-L		●		■	■	■					■	■	■	■	■									■	■	■	■		●	●							●	●			●	●	●		●
DLT-20-L		●		■	■	■					■	■	■	■	■	■								■	■	■	■		●	●							●	●			●	●	●		●
DLT-25-L		●		■	■	■					■	■	■	■	■	■	■							■	■	■	■	■	●	●							●	●			●	●	●		●
THRUSTER SLIDE -EXTERNALLY POWERED																																													
DLT-06-T, U		●		■							■	■												■	■				●	●		●	●				●				●	●	●		
DLT-08-T, U		●		■	■						■	■	■											■	■				●	●		●	●				●				●	●	●		
DLT-10-T, A, N, U		●		■							■	■	■	■	■									■	■	■			●	●		●	●	●			●	●			●	●	●		●
DLT-12-T, A, N, U		●		■	■						■	■	■	■	■	■	■							■	■	■	■		●	●		●	●	●			●	●			●	●	●		●
DLT-16-T, A, N, U		●		■	■						■	■	■	■	■	■	■	■	■					■	■	■	■		●	●		●	●	●			●	●			●	●	●		●
DLT-20-T, A, N, R, U		●		■	■	■					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		●	●		●		●	●	●	●	●		●	●	●		●	●	●
DLT-25-T, A, N, R, U		●		■	■	■					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	●	●		●		●	●	●	●	●		●	●	●		●	●	●

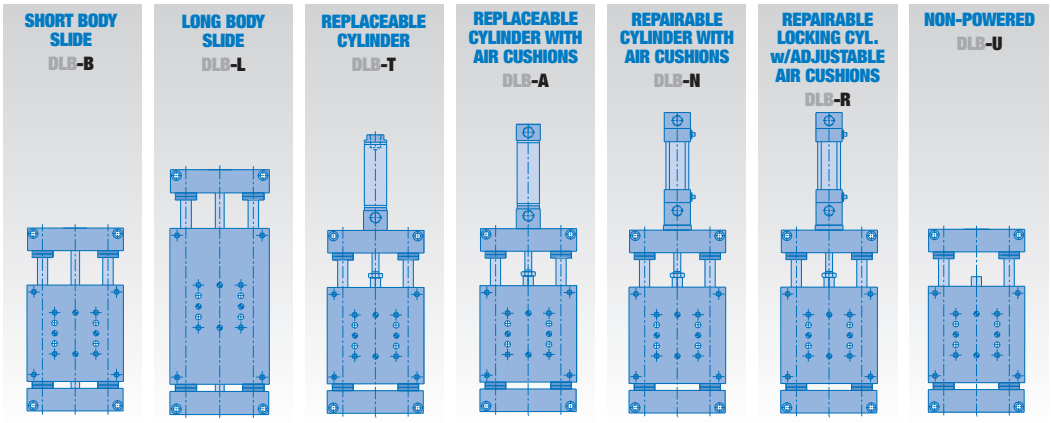
Robohand Slide Product Selector

Model #	Type of Slide			Maximum Thrust Force Range							Maximum Stroke																				Maximum Payload						Operating Pressure		Cylinder Type						Bearings				Inductive Sensors	Magneto Resistive Sensors	Shock Absorbers w/Stops	Bumpers and Collars	Independent End Stops	Air Cushioned Cylinder	Telescopic Airlines
	Base Slide	Thruster Slide	Lift/Block Thruster	0 - 25 lbs.	25 - 50 lbs.	50 - 100 lbs.	100 - 150 lbs.	150 - 200 lbs.	200 - 300 lbs.	300+ lbs.	0 - 2 in.	2 - 4 in.	4 - 6 in.	6 - 8 in.	8 - 10 in.	10 - 12 in.	12 - 14 in.	14 - 16 in.	16 - 18 in.	18 - 20 in.	20 - 22 in.	22 - 24 in.	24 in. +	0 - 10 lbs.	10 - 25 lbs.	25 - 50 lbs.	50 - 100 lbs.	100 - 150 lbs.	150 lbs. +	20 - 100 psi	40 - 100 psi	Internal (Repairable)	External (Replaceable)	External (ISO)	External (NFPA)	External (VDMA)	External (VDMA) Locking	Customer Supplied	Preloaded Ball Bushing	Composite Bushings	Roller Bearings	Bronze Bushings	Inductive Sensors	Magneto Resistive Sensors	Shock Absorbers w/Stops	Bumpers and Collars	Independent End Stops	Air Cushioned Cylinder	Telescopic Airlines
MINI BALL RAIL SLIDE																																																			
DLM-07M-12	●	●	●	■							■													■					●		●								●				●	●			●		
DLM-07M-25	●	●	●	■							■													■					●		●								●				●	●			●		
DLM-07M-38	●	●	●	■							■													■					●		●								●				●	●			●		
DLM-07M-50	●	●	●	■							■													■					●		●								●				●	●			●		
DLM-09M-25	●	●	●	■							■													■					●		●								●				●	●			●		
DLM-09M-50	●	●	●	■							■													■					●		●								●				●	●			●		
DLM-09M-75	●	●	●	■							■													■					●		●								●				●	●			●		
DLM-09M-100	●	●	●	■							■													■					●		●								●				●	●			●		
DLM-12M-25	●	●	●	■							■													■					●		●								●				●	●			●		
DLM-12M-50	●	●	●	■							■													■					●		●								●				●	●			●		
DLM-12M-75	●	●	●	■							■													■					●		●								●				●	●			●		
DLM-12M-100	●	●	●	■							■													■					●		●								●				●	●			●		

DIRECTCONNECT™

1. A full line of individual Base Slides,

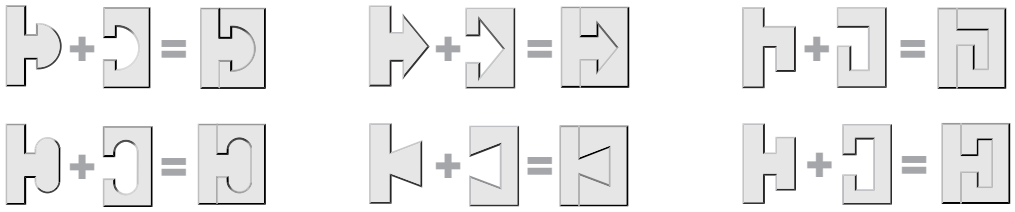
15 different styles of Base Slides, Thrusters, and Block Slides. Each style is available in 7 sizes; both Imperial and Metric!



2. quickly & easily mount together

Simply match any DIRECTCONNECT icon to its appropriate mate to identify a matching mounting pattern. It's that easy!

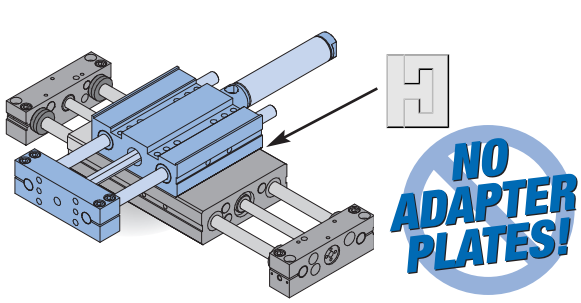
Single icons represent various 4 screw, 2 dowel mounting patterns. Mated icons represent a DIRECTCONNECT



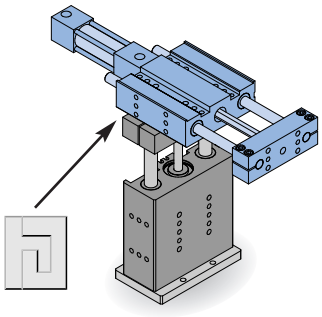
DIRECTCONNECT *mounting selection is achieved by matching mating icons*

3. create an almost unlimited array

Combine 2, 3, or more units together to create an unlimited variety of Pick and Place units to suit your application needs!



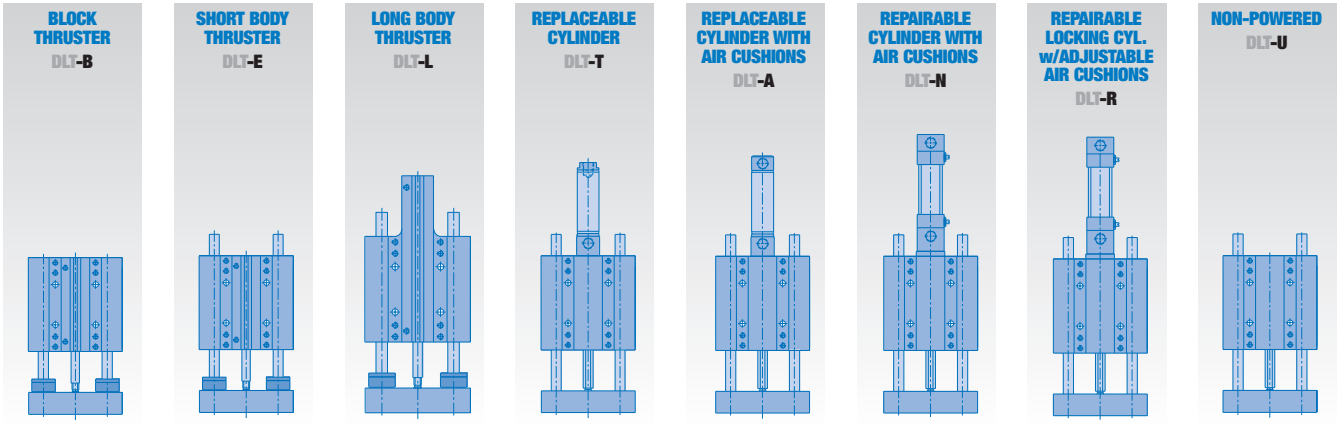
DIRECTCONNECT *between Base Slides & Thrusters*



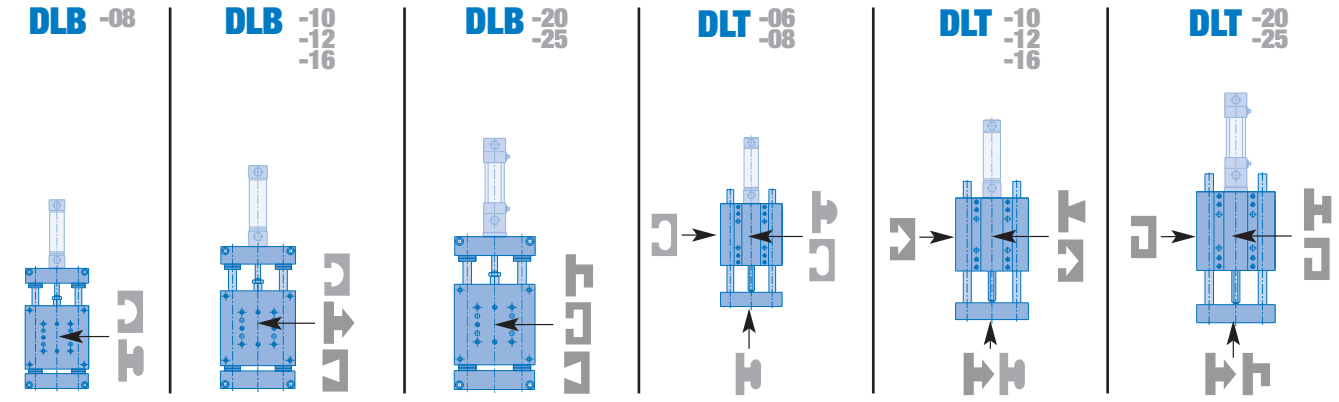
DIRECTCONNECT *between various styles*

IS AS EASY AS 1-2-3!

Block Thrusters, and Thruster Slides that…

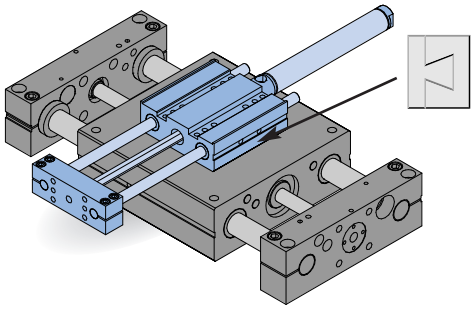


WITHOUT ADAPTER PLATES to…

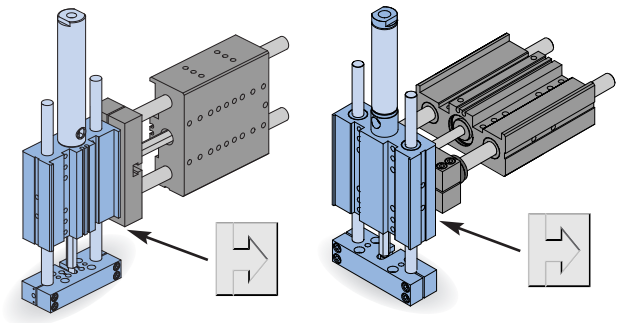


DIRECTCONNECT™ *mounting patterns are common and standard on all styles and sizes*

of multi-axis Pick and Place devices!



NO ADAPTER PLATES!



DIRECTCONNECT™ *between different sizes*

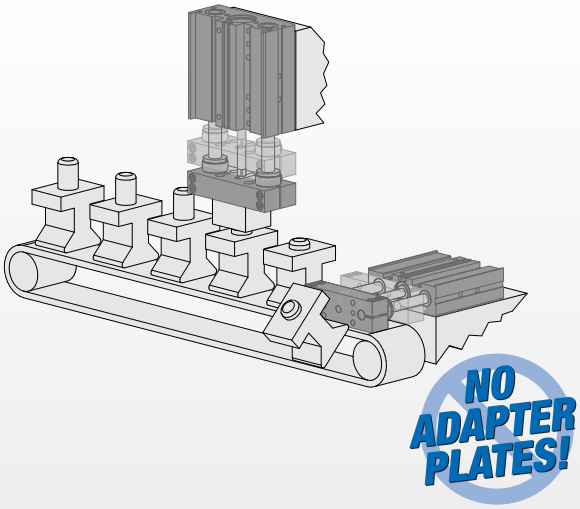
DIRECTCONNECT™ *in multiple orientations*

DIRECTCONNECT™

DIRECTCONNECT™

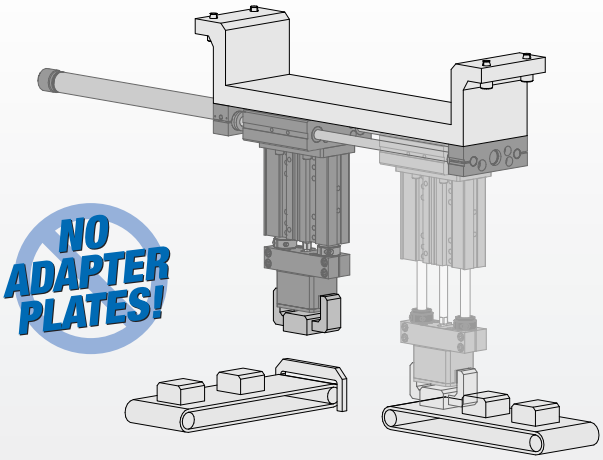
Modular Automation Applications

The following applications represent only some of the unlimited variety of automa tion solutions made possible with DIRECTCONNECT. Configurations shown include individual components used in single axis a pplications as well as combinations of units connected ***WITHOUT ADAPTER PLATES*** to create multi-axis modular automation devices.

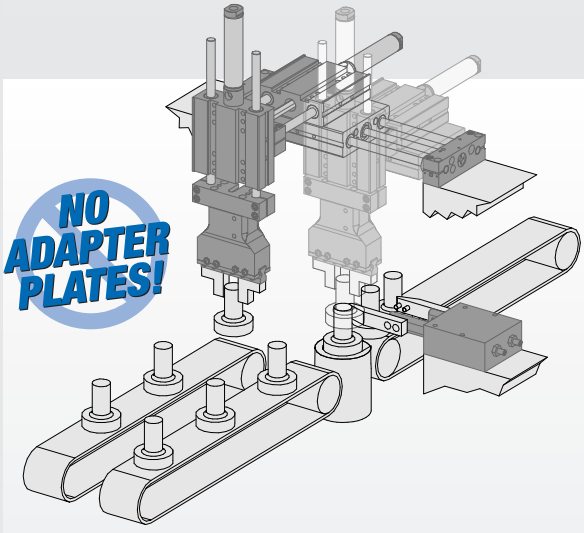


Individual Block Thrusters used independently to perform press and eject operations.

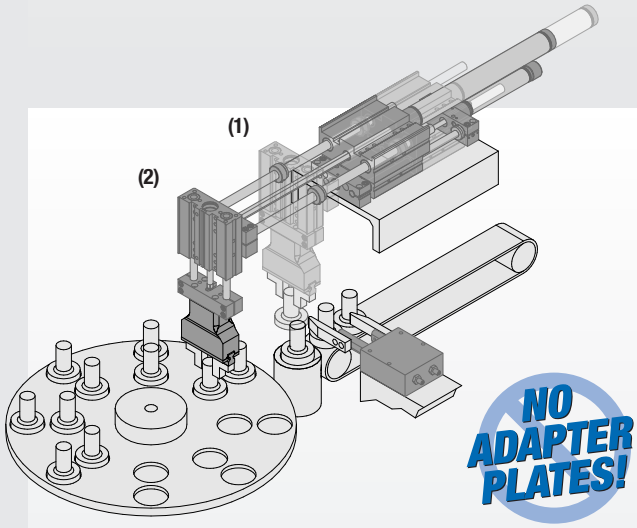
The Block Thruster's compact design is ideal in a pplications where space is limited.



An overhead gantry created using an inverted Base Slide and Block Thruster with the Base Flange option. The externally powered Base Slide can provide long strokes while the Block Thruster offers a low profile package.



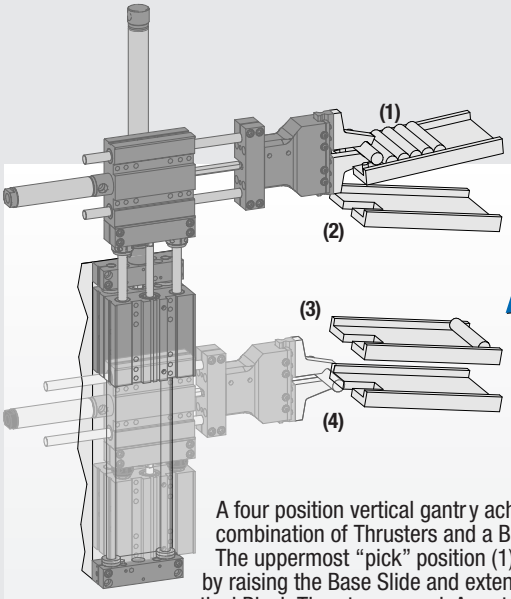
A three axis pick and place crea ted using a Base Slide and two Thrusters. The system allows a single escapement station to feed two conveyor lines. All positions are precisely located with Hard Stops or Shocks. This set-up also allows for a "reject" position.



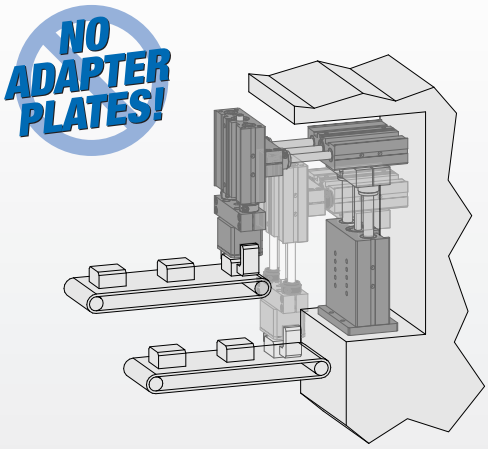
Mounting a Thruster to a Base Slide on the same axis is used to achieve a three or four position box motion pick and place.

Retracting both Thruster and Base Slide puts the system a t a home "pick" position (1). Extending both the horizontal Base Slide and Thruster allows the part to be placed in the inner turntable nest (2). The Slide returns to the "pick" position and the horizontal Thruster is extended allowing the part to be placed in the outer turntable nest. All three positions are precisely loca ted with hard stops or shocks.

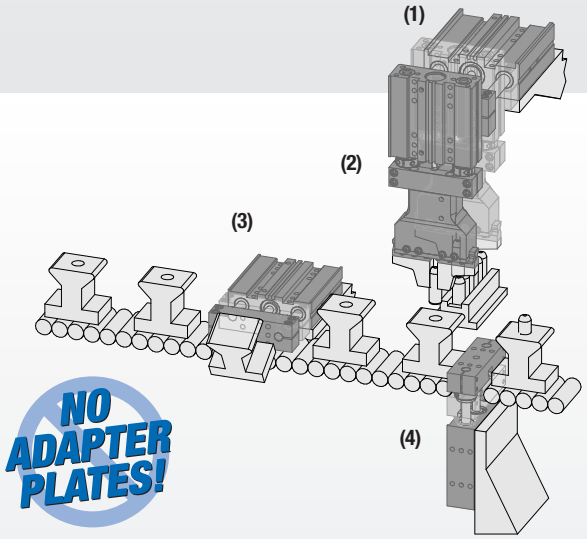
A fourth "reject" position could be simply added by extending the Base Slide while the Thruster is retracted.



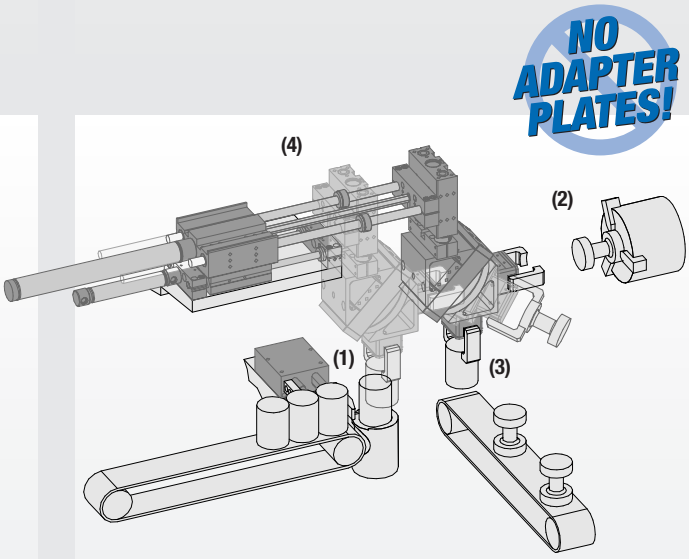
A four position vertical gantry achieved with a combination of Thrusters and a Base Slide. The uppermost "pick" position (1) is reached by raising the Base Slide and extending the vertical Block Thruster upward. A part picked from here could be placed in one of the three remaining positions.
Position (2) is achieved by keeping the Base Slide in the raised position while retracting the vertical Thruster.
Position (3) is attained by lowering the Base Slide while extending the vertical Thruster.
Position (4) is obtained by retracting the vertical Thruster.
All positions can be precisely located by using Hard Stops for accurate location of picking and placing.



A more elaborate box motion pick and place using Block Thrusters to achieve part transfer between multi-level conveyors.
Due to space limitations the application of Block Thrusters is a good choice.

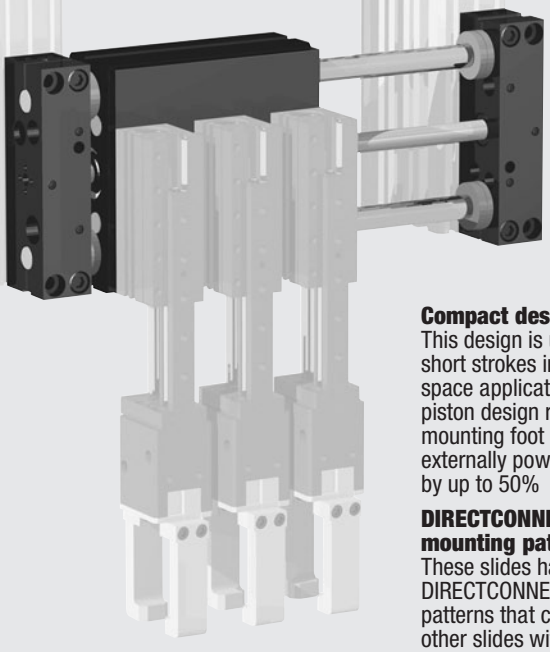


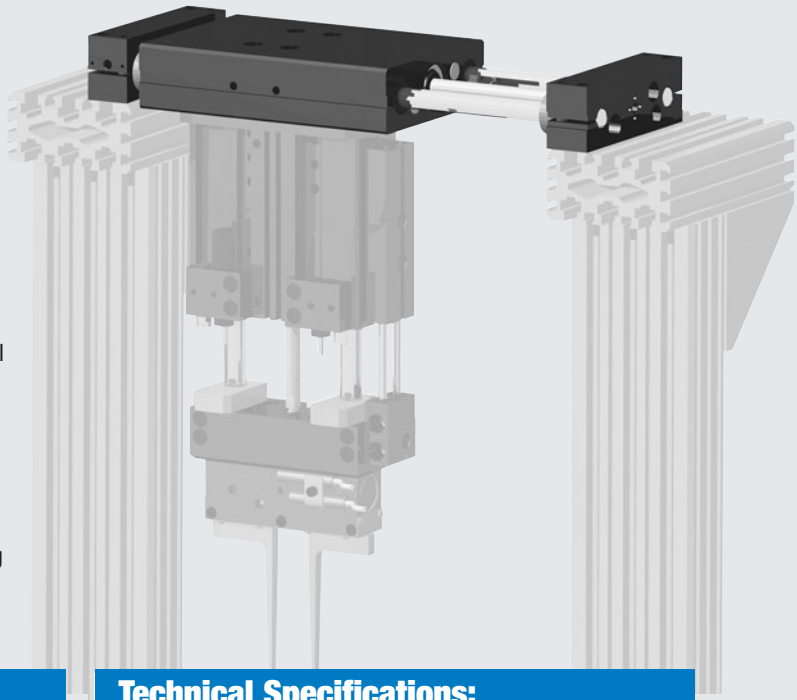
A combination of Thrusters used independently and together for various functions.
A simple box motion pick and place utilizing a larger horizontal Thruster (1) for increased rigidity and smaller vertical Thruster (2) where deflection is not as much of a concern.
An individual Block Thruster (3) used to eject defective (hole missing) parts and another Block Thruster (4) used as a conveyor stop. All units are compact and mount easily into a small area.



Machine load/unload application utilizes 3 or 4 positions in the horizontal axis for picking the billet (1), inserting/removing the finished part from the lathe (2) and placing the finished part on the conveyor (3).A fourth position could be utilized for a "reject" position. This pick and place device uses a Base Slide and a Thruster mounted in the same axis. The Thruster is a longer stroke version with its actual usable stroke reduced using adjustable collars (4). Vertical motion for the pick and place is accomplished using a Block Thruster.
A right angle rotary is used to make the axis change between the billet and the machine axis. All components are standard, off-the-shelf, and quickly & easily designed and assembled.

Internally Powered Base Slides



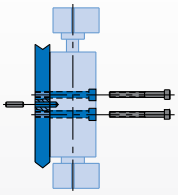


Compact design:
This design is used for short strokes in limited space applications. Internal piston design reduces the mounting foot print over externally powered slides by up to 50%

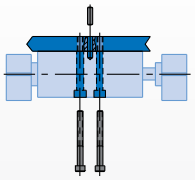
DIRECTCONNECT mounting patterns:
These slides have DIRECTCONNECT mounting patterns that connect to other slides without the need for adapter plates.

Mounting Information:

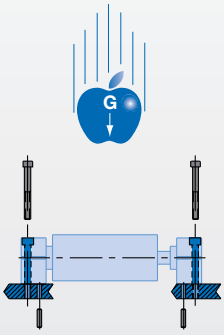
Mounts and operates in any orientation



Payload attaches to tapped holes in body with screws and locates using slip fit dowel pin holes



Payload attaches with screws through clearance and counterbored holes in body and locates using slip fit dowel pin holes



End blocks mount with screws and locate with slip fit dowel pin holes

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range*	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary****
Air Humidity	**Low Moisture Content (dry)**

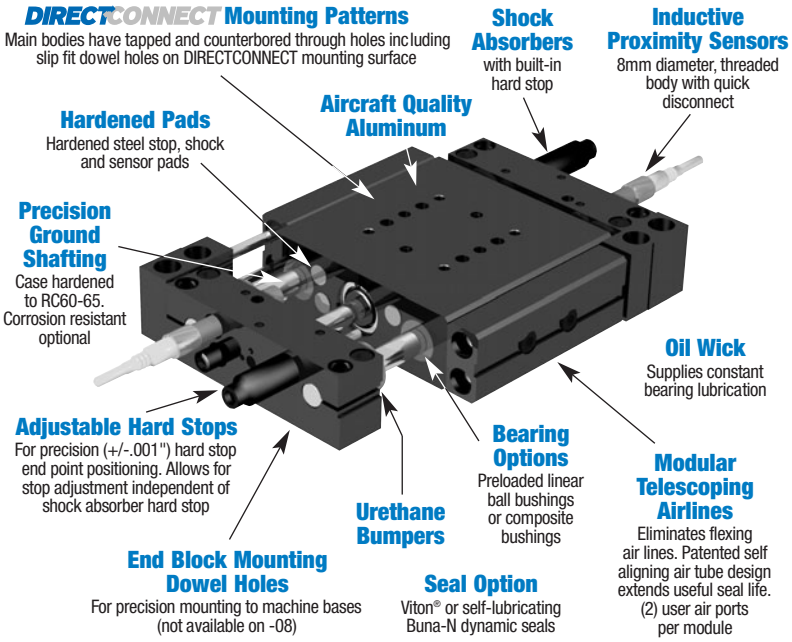
Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~300° F**	**-30°~150° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles**†
Field Repairable	**No**
Seal Repair Kits Available	**No**

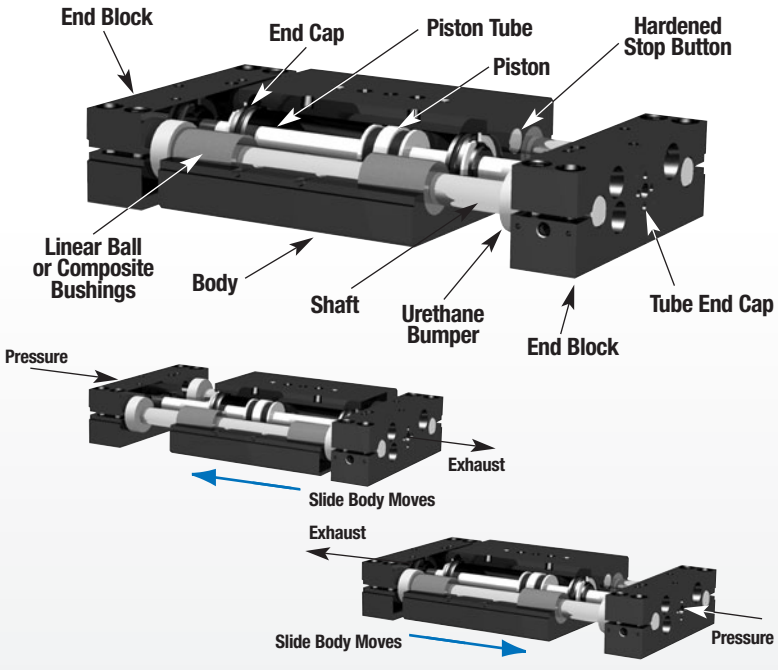
Application Restrictions
Flow controls, shock absorbers and urethane bumpers recommended for nearly all applications.
Use composite bushing in dirty or gritty environments.
Never use silicone based lubricants with composite bushings.

*Higher pressure possible. Consult factory with application details.
**Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features



Operating Principle

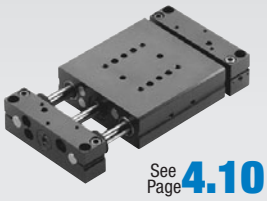


- A stationary piston is sandwiched between two fixed end blocks by two hollo w piston tubes.
- The piston separates the cylinder bore in the body into two chambers
- The tubes fit into the piston in such a way tha t allows air to escape from the tube/ piston interface into one air chamber of the bod y.
- The body is guided by four linear bearings sliding on two shafts tha t are supported by the end blocks.
- The body has two end caps attached to each end of the cylinder bore which seals the air chambers.
- When air is supplied through a piston tube, it pressurizes that side of the cylinder of the body.
- The pressure creates a force against the end cap which pulls the body along with it.

Designed and manufactured in the USA

Style-B Short Body Slide

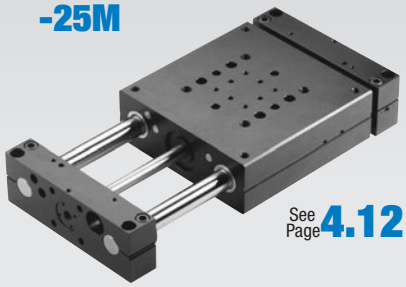
Size 10M (shown)
12M
16M



See Page 4.10

Style-B Short Body Slide

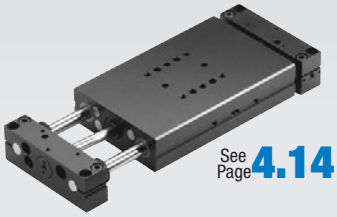
Size -20 (shown)
-25
-20M
-25M



See Page 4.12

Style-L Long Body Slide

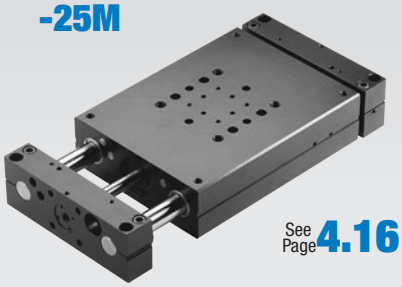
Size -10M (shown)
-12M
-16M



See Page 4.14

Style-L Long Body Slide

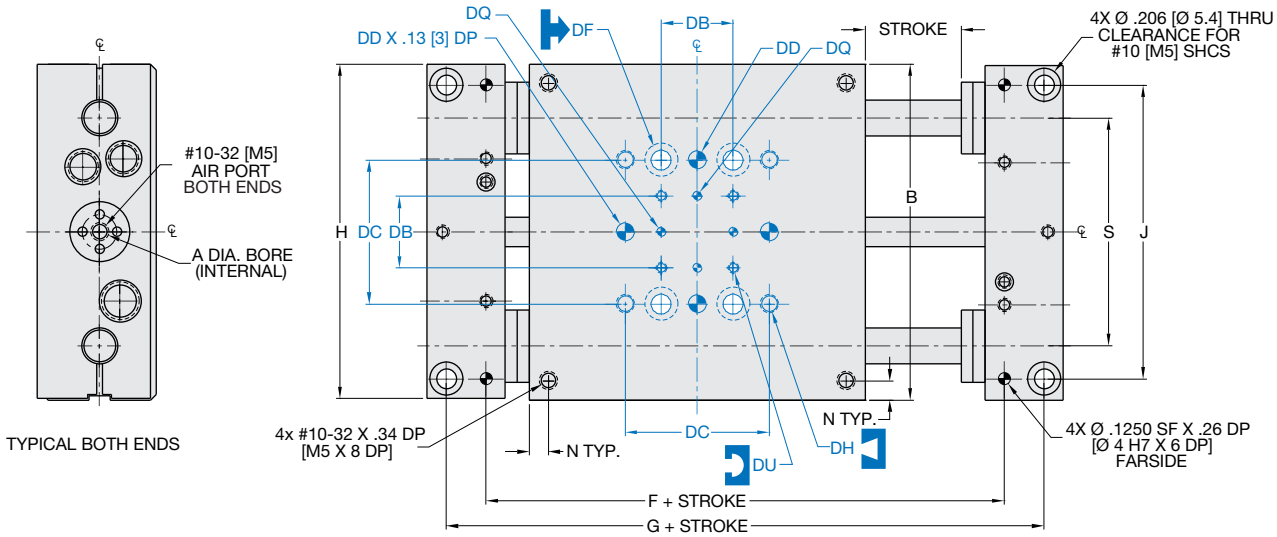
Size -20 (shown)
-25
-20M
-25M

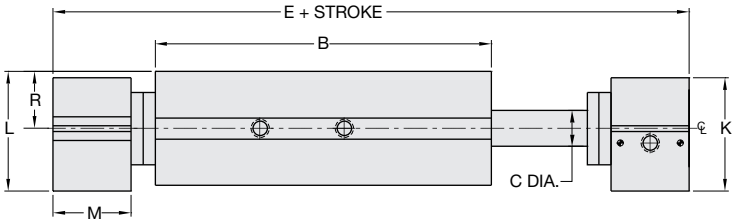


See Page 4.16

SHORT BODY SLIDE DLB -10M, 12M, 16M -B
BUILT-IN REPAIRABLE CYLINDER

Robohand





UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

BASIC UNIT DIMENSIONS

BORE DIA. / BODY SIZE / SHAFT DIA.

MODEL #	A	B	C	E	F	G	H	J	K	L	M	N	R	S
DLB-10	3/4	3.50	.375	5.63	4.3975	5.228	3.485	3.0600	1.178	1.245	.813	N/A	.594	2.375
DLB-12	1	4.00	.472	6.13	4.8975	5.728	3.985	3.5000	1.615	1.657	.813	.375	.813	2.750
DLB-16	1	4.75	.630	6.88	5.6475	6.478	4.735	4.2500	1.615	1.657	.813	.375	.813	2.750
DLB-10M	19	88.9	9.5	143.0	111.70	132.8	88.5	77.72	29.9	31.6	20.7	N/A	15.09	60.33
DLB-12M	25	101.6	12	155.7	124.40	145.5	101.2	88.90	41.0	42.1	20.7	9.5	20.65	69.85
DLB-16M	25	120.7	16	174.8	143.45	164.5	120.3	107.95	41.0	42.1	20.7	9.5	20.65	69.85

DIRECTCONNECT DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DB	.750	19.1
DC	1.500	38.1
DD	.1880 X .25 DP	5mm H7 X 6 DP
DF	Clearance for #10	Clearance for M5
DH	#10-32 X .34DP	M5 X 8.5DP
DQ	.0940 X .078 DP	3H7 X 2 DP
DU	#4-40 X .25 DP	M3 X 6 DP

How to Order: Basic Unit

BASIC MODEL | METRIC | STYLE | STROKE | SHAFTING

DLB - [ ] M - B - [ ] - [ ] - V - S

SIZE | BEARING | VITON® SEALS

SIZE 10, 12, 16

METRIC M

STYLE B Short body slide with built-in repairable cylinder

BEARING B Linear ball bearings
C Composite bushings

STROKE (inches)
DLB-10 1-2 @ 1" increments
DLB-12 1-2 @ 1" increments
DLB-16 1-3 @ 1" increments

Custom strokes available. Please consult factory.

STROKE (mm)
DLB-10M 25, 50
DLB-12M 25, 50
DLB-16M 25, 50, 80

VITON® V Viton® Seals

SHAFTING S Corrosion resistant shafting

SAMPLE ORDER: DLB-12M-B-C-25

Ex: Base Slide, Size 12 Metric, Short Body Style w/Built-in Cylinder, Composite Bushings, 25mm Stroke

Accessories: (Order Separately)

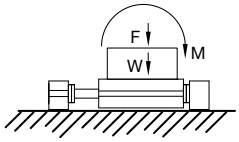
	DLB-10M	DLB-12M	DLB-16M	QTY/SLIDE
SHOCK/STOP ACCESSORIES				
Shock Absorber	SHOK-028	SHOK-010	SHOK-010	1 or 2
Adjustable Hard Stop	DLT-1023	DLT-1023	DLT-1023	1 or 2
INDUCTIVE SENSOR ACCESSORIES †				
Inductive Sensor PNP Qk. Disconnect	OISP-011	OISP-011	OISP-011	1 or 2
Inductive Sensor NPN Qk. Disconnect	OISN-011	OISN-011	OISN-011	1 or 2
Quick Disconnect 2M Cable Length	CABL-010	CABL-010	CABL-010	1 or 2
Quick Disconnect 5M Cable Length	CABL-013	CABL-013	CABL-013	1 or 2
PNEUMATIC ACCESSORIES				
1/8 NPT Telescopic Airlines (up to 2")	OTAL-037	OTAL-037	OTAL-037	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 3")	OTAL-038	OTAL-038	OTAL-038	1, 2, 3 or 4
#10-32 Adjustable Flow Control	VLVF-007	VLVF-007	VLVF-007	1 or 2
G1/8 Telescopic Airlines (up to 50mm)	OTAL-043	OTAL-043	OTAL-043	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 80mm)	OTAL-044	OTAL-044	OTAL-044	1, 2, 3 or 4
M5 Adjustable Flow Control	VLVF-008	VLVF-008	VLVF-008	1 or 2
Cylinder Seal Repair Kit	SLKT-101	SLKT-103	SLKT-103	1
Viton® Cylinder Seal Repair Kit	SLKT-101V	SLKT-103V	SLKT-103V	1

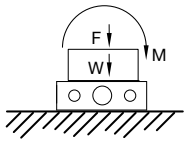
†Sensor and cable sold separately

Loading Specifications Table - Style DLB-10M, 12M,16M -B

	10	10M	12	12M	16	16M
Maximum Payload (**W**) horizontal motion w/Shock Absorbers	15 lbs.	6.8 kg	30 lbs.	13.6 kg	45 lbs.	20.4 kg
Maximum Payload (**W**) vertical motion w/Shock Absorbers	7 lbs.	3.1 kg	15 lbs.	6.8 kg	22 lbs.	9.9 kg
Maximum Payload (**W**) horizontal motion w/Urethane Bumpers	5 lbs.	2.2 kg	10 lbs.	4.5 kg	15 lbs.	6.8 kg
Maximum Total Applied Load + Payload (**F**+**W**)	25 lbs.	111 N	40 lbs.	178 N	70 lbs.	311N
Total Maximum Moment about any Axis (**M**)	75 in.-lbs.	8.4 N-m	150 in.-lbs.	16.9 N-m	300 in.-lbs.	33.9 N-m

F=Externally applied force
W=Weight of payload
F+**W**=Total force
M=Maximum moment





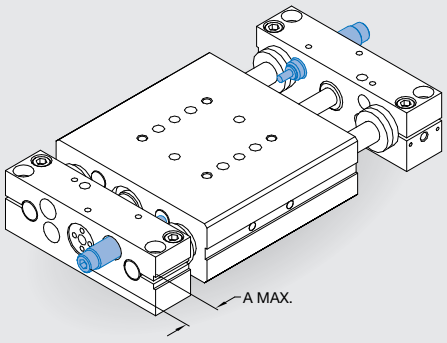
Shock Absorbers and Flow Controls are recommended for nearly all applications

Specifications	DLB-10	DLB-10M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	29 lbs.	129 N
Weight (Basic Unit)	2.08 lbs.	0.93 kg
Additional Weight per Stroke	0.08 lbs./in.	1.4g/mm
Cylinder Bore Diameter	3/4"	19mm
Shaft Diameter	0.375"	9.5mm

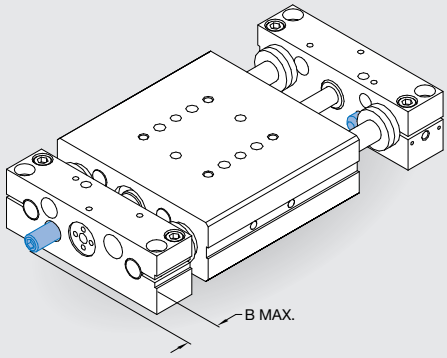
Specifications	DLB-12	DLB-12M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	57 lbs.	254 N
Weight (Basic Unit)	3.83 lbs.	1.7 kg
Additional Weight per Stroke	0.12 lbs./in.	2.1g/mm
Cylinder Bore Diameter	1.0"	25mm
Shaft Diameter	0.472"	12mm

Specifications	DLB-16	DLB-16M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	57 lbs.	254 N
Weight (Basic Unit)	5.19 lbs.	2.4 kg
Additional Weight per Stroke	0.19 lbs./in.	3.3g/mm
Cylinder Bore Diameter	1.0"	25mm
Shaft Diameter	.630"	16mm

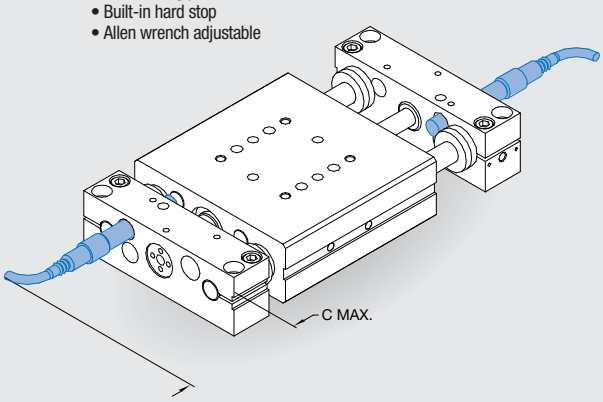
Accessory Mounting Technical Data



Shock Absorbers
- Full stroking piston rod
- Built-in hard stop
- Allen wrench adjustable

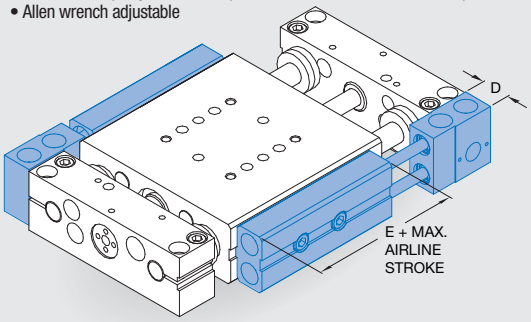


Adjustable Hard Stops
- For precision (+/-.001") hard stop end point positioning
- Allows for stop adjustment independent of shock absorber hard stop
- Allen wrench adjustable



Inductive Proximity Sensors
- 8mm diameter
- Threaded quick disconnect with built-in LED output
- PNP and NPN available

Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

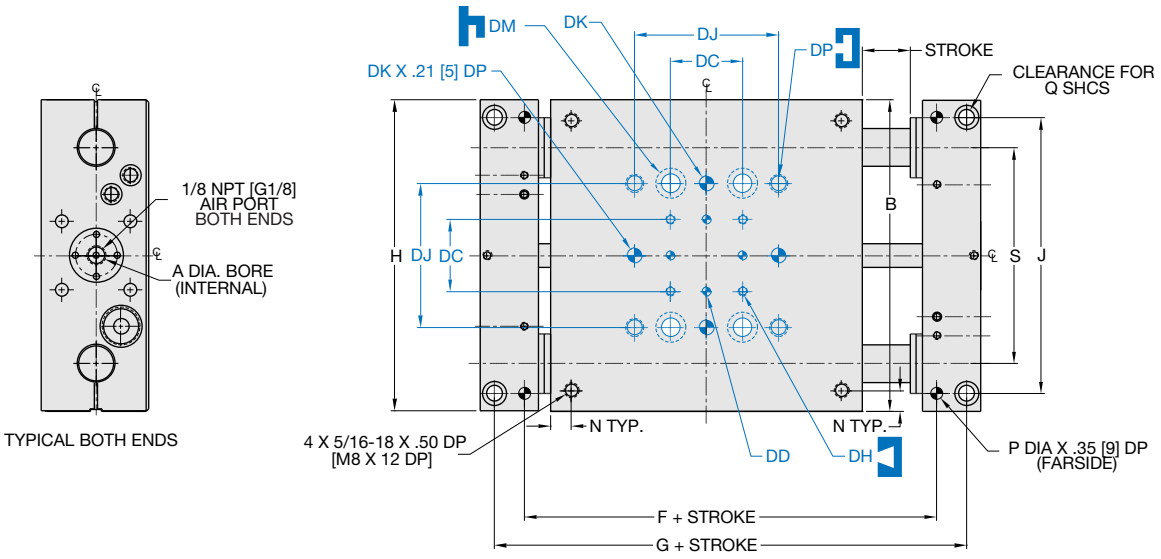


Telescoping Airlines
- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- Modules can be mounted on either side of slide
- 1/8 NPT or G1/8 pipe threads
- (2) user air ports per module

Flow Controls for Cylinders
- Thumb screw adjust with locking nut for adjusting cylinder speed
- #10-32 or M5 pipe threads

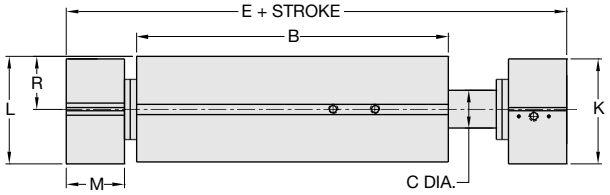
	A	B	C	D	E
DLB-10	.70"	.47	2.5	.577	3.60
DLB-12	.95"	.47	2.5	.577	3.60
DLB-16	.95"	.47	2.5	.577	3.60
DLB-10M	17.8mm	11.9	63.5	14.7	91.4
DLB-12M	24.1mm	11.9	63.5	14.7	91.4
DLB-16M	24.1mm	11.9	63.5	14.7	91.4

SHORT BODY SLIDE DLB -20M, 25M -B
BUILT-IN REPAIRABLE CYLINDER



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	**Metric [mm]** [0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]



BASIC UNIT DIMENSIONS

MODEL #	BORE DIA. A	BODY SIZE B	SHAFT DIA. C	E	F	G	H	J	K	L	M	N	P	Q	R	S
DLB-20	1 1/2	6.50	.787	9.42	7.5850	8.836	6.480	5.7500	2.180	2.236	1.210	.438	.2505	5/16	1.100	4.500
DLB-25	1 1/2	7.50	.984	10.84	8.7320	10.108	7.480	6.7500	2.180	2.236	1.420	.438	.3130	3/8	1.100	5.250
DLB-20M	38	165.1	20	239.3	192.66	224.4	164.6	146.05	55.4	56.8	30.7	11.1	6.00	M8	27.94	114.30
DLB-25M	38	190.5	25	275.3	221.79	256.7	190.0	171.45	55.4	56.8	36.1	11.1	8.00	M10	27.94	133.35

DIRECTCONNECT DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DC	1.500	38.1
DD	.1880 X .25 DP	5 mm H7 X 6 DP
DH	#10-32 X .34 DP	M5 X 8.5 DP
DJ	3.000	76.2
DK	.3130 X .37 DP	8 mm H7 X 9.4 DP
DM	Clr & C'bore for 3/8	Clr & C'bore for M10
DP	3/8-16 X .50 DP	M10 X 12 DP

How to Order: Basic Unit

BASIC MODEL | METRIC | STYLE | STROKE | SHAFTING

DLB - [ ] **M - B -** [ ] - [ ] **- V - S**

SIZE | BEARING | VITON® SEALS

SIZE **20, 25**

METRIC **M**

STYLE **B** Short body slide with built-in repairable cylinder

BEARING **B** Linear ball bearings
C Composite bushings

STROKE (inches)
DLB-20 **1-4** @ 1" increments
DLB-25 **1-5** @ 1" increments

STROKE (mm)
DLB-20M **25, 50, 80, 100**
DLB-25M **25, 50, 80, 100, 125**

Custom strokes available. Please consult factory.

VITON® **V** Viton® seals

SHAFTING **S** Corrosion resistant shafting

SAMPLE ORDER: DLB-20-B-C-3-V

Ex: Base Slide, Size 20, Short Body Style w/Built-in Cylinder, Composite Bushings, 3 Inch Stroke, Viton® Seals

Accessories: (Order Separately)

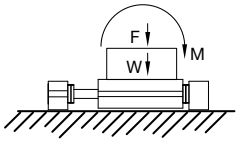
	DLB-20M	DLB-25M	QTY/SLIDE
SHOCK/STOP ACCESSORIES			
Shock Absorber (adjustable dampening)	SHOK-029	SHOK-029	1 or 2
Adjustable Hard Stop	DLT-1023	DLT-1023	1 or 2
INDUCTIVE SENSOR Accessories†			
Inductive Sensor PNP Qk. Disconnect	OISP-011	OISP-011	1 or 2
Inductive Sensor NPN Qk. Disconnect	OISN-011	OISN-011	1 or 2
Quick. Disconnect 2M Cable Length	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length	CABL-013	CABL-013	1 or 2
PNEUMATIC Accessories			
1/8 NPT Telescopic Airlines (up to 4")	OTAL-049	OTAL-049	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 5")	OTAL-050	OTAL-050	1, 2, 3 or 4
1/8 NPT Adjustable Flow Control	VLVF-004	VLVF-004	1 or 2
G1/8 Telescopic Airlines (up to 100mm)	OTAL-051	OTAL-051	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 125mm)	OTAL-052	OTAL-052	1, 2, 3 or 4
G1/8 Adjustable Flow Control	VLVF-005	VLVF-005	1 or 2
Cylinder Seal Repair Kit	SLKT-105	SLKT-105	1
Viton® Cylinder Seal Repair Kit	SLKT-105V	SLKT-105V	1

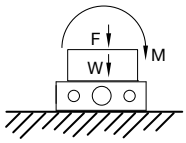
†Sensor and cable sold separately

Loading Specifications Table - Style DLB-20M, 25M -B

	20	20M	25	25M
Maximum Payload (**W**) horizontal motion using Shock Absorbers	60 lbs.	27.2 kg	100 lbs.	45.3 kg
Maximum Payload (**W**) vertical motion using Shock Absorbers	30 lbs.	13.6 kg	50 lbs.	22.0 kg
Maximum Payload (**W**) horizontal motion using Urethane Bumpers	20 lbs.	9.1 kg	25 lbs.	11.3 kg
Maximum Total Applied Load + Payload (**F**+**W**)	100 lbs.	444 N	150 lbs.	667 N
Total Maximum Moment about any Axis (**M**)	600 in.-lbs.	67.7 N-m	1200 in.-lbs.	135.5 N-m

F=Externally applied force
W=Weight of payload
F+**W**=Total force
M=Maximum moment



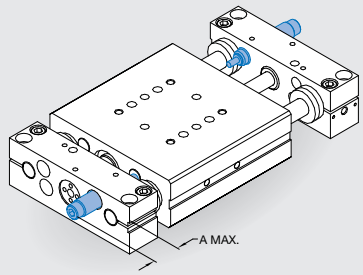


Shock Absorbers and Flow Controls are recommended for nearly all applications

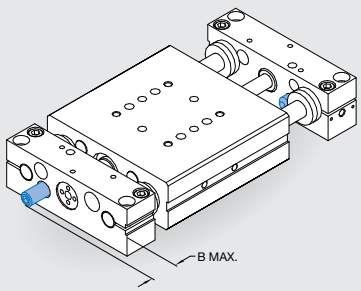
Specifications	DLB-20	DLB-20M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	126 lbs.	560 N
Weight (Basic Unit)	13.0 lbs.	5.9 kg
Additional Weight per Stroke	0.32 lbs./in.	5.54g/mm
Cylinder Bore Diameter	1-1/2"	38mm
Shaft Diameter	0.787"	20mm

Specifications	DLB-25	DLB-25M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	126 lbs.	560 N
Weight (Basic Unit)	18.2 lbs.	8.2 kg
Additional Weight per Stroke	0.47 lbs./in.	8.4g/mm
Cylinder Bore Diameter	1-1/2"	38mm
Shaft Diameter	0.984"	25mm

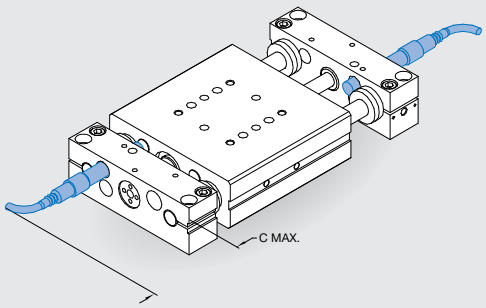
Accessory Mounting Technical Data



Shock Absorbers
- Full stroking piston rod
- Built-in hard stop
- Position adjustable
- Adjustable dampening

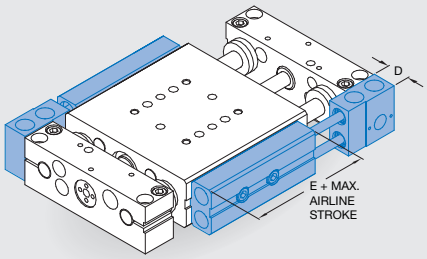


Adjustable Hard Stops
- For precision (+/-.001") hard stop end point positioning
- Allows for stop adjustment independent of shock absorber hard stop
- Allen wrench adjustable

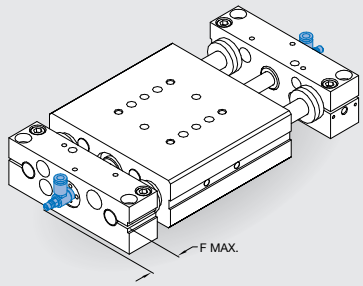


Inductive Proximity Sensors
- 8mm diameter
- Threaded quick disconnect with built-in LED output
- PNP and NPN available

Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length



Telescoping Airlines
- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- Modules can be mounted on either side of slide
- 1/8 NPT or G1/8 pipe threads
- (2) user air ports per module



Flow Controls for Cylinders
- Thumb screw adjust with locking nut for adjusting cylinder speed
- 1/8 NPT or G1/8 pipe threads

	A	B	C	D	E	F
DLB-20	2.03"	.10	2.1	.577	3.60	1.25
DLB-25	1.82"	.10	1.9	.577	3.60	1.25
DLB-20M	51.6mm	2.5	53.8	14.7	91.4	31.8
DLB-25M	46.2mm	2.5	48.3	14.7	91.4	31.8

LONG BODY SLIDE DLB -10M, 12M, 16M -L
BUILT-IN REPAIRABLE CYLINDER

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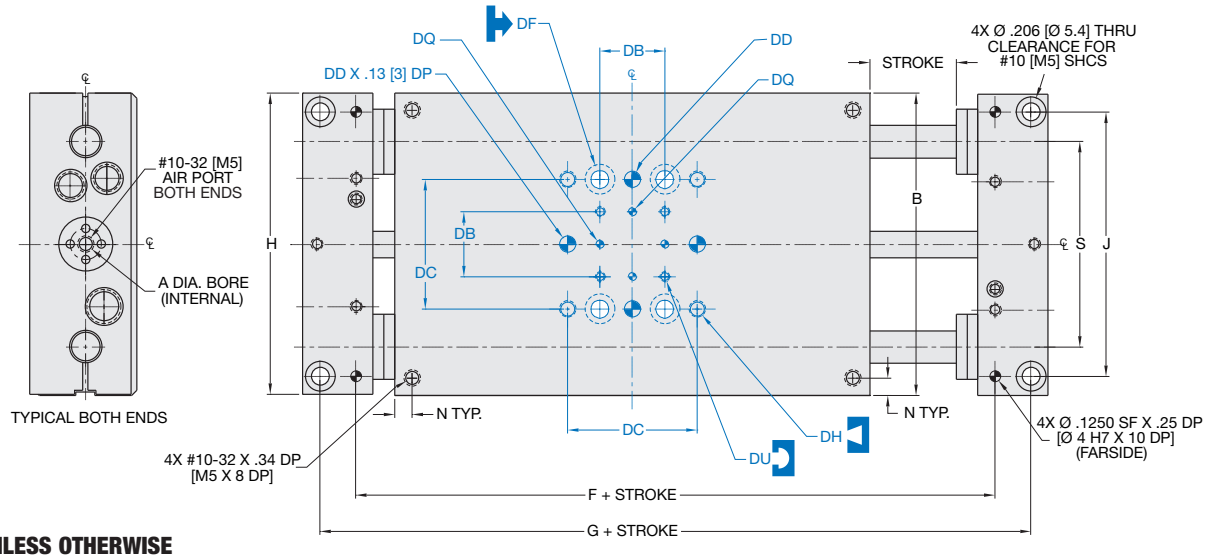
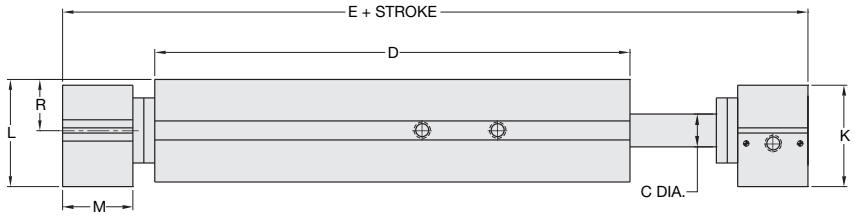




UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

- Dimensions are symmetrical about centerline
- Third Angle Projection
- All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
- Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

BASIC UNIT DIMENSIONS

(BORE DIA. / BODY SIZE / SHAFT DIA.)

MODEL #	A	B	C	D	E	F	G	H	J	K	L	M	N	R	S
DLB-10	3/4	3.50	.375	5.50	7.63	6.3975	7.228	3.485	3.0600	1.178	1.245	.813	N/A	.594	2.375
DLB-12	1	4.00	.472	6.50	8.63	7.3975	8.228	3.985	3.5000	1.615	1.657	.813	.375	.813	2.750
DLB-16	1	4.75	.630	7.50	9.63	8.3975	9.228	4.735	4.2500	1.615	1.657	.813	.375	.813	3.250
DLB-10M	19	88.9	9.5	139.7	193.8	162.50	183.6	88.5	77.72	29.9	31.6	20.7	N/A	15.09	60.33
DLB-12M	25	101.6	12	165.1	219.2	187.90	209.0	101.2	88.90	41.0	42.1	20.7	9.5	20.65	69.85
DLB-16M	25	120.7	16	190.5	244.6	213.30	234.4	120.3	107.95	41.0	42.1	20.7	9.5	20.65	82.55

DIRECTCONNECT DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DB	.750	19.1
DC	1.500	38.1
DD	.1880 X .25 DP	5mm H7 X 6 DP
DF	Clearance for #10	Clearance for M5
DH	#10-32 X .34DP	M5 X 8.5DP
DQ	.0940 X .078 DP	3H7 X 2 DP
DU	#4-40 X .25 DP	M3 X 6 DP

How to Order: Basic Unit

BASIC MODEL | METRIC | STYLE | STROKE | SHAFTING

DLB - [ ] M - L - [ ] - [ ] - V - S

SIZE | BEARING | VITON® SEALS

SIZE 10, 12, 16

METRIC M

STYLE L Long body slide with built-in repairable cylinder

BEARING B Linear ball bearings
C Composite bushings

STROKE (inches)
DLB-10 1-4 @ 1" increments
DLB-12 1-5 @ 1" increments
DLB-16 1-6 @ 1" increments

Custom strokes available. Please consult factory.

STROKE (mm)
DLB-10M 25, 50, 80, 100
DLB-12M 25, 50, 80, 100, 125
DLB-16M 25, 50, 80, 100, 125, 150

VITON® V Viton® seals

SHAFTING S Corrosion resistant shafting

SAMPLE ORDER: DLB-12M-L-C-25-V

Ex: Base Slide, Size 12 Metric, Long Body Style w/Built-in Cylinder, Composite Bushings, 25mm Stroke, Viton® Seals

Accessories: (Order Separately)

	DLB-10M	DLB-12M	DLB-16M	QTY/SLIDE
SHOCK/STOP ACCESSORIES				
Shock Absorber	SHOK-028	SHOK-010	SHOK-010	1 or 2
Adjustable Hard Stop	DLT-1023	DLT-1023	DLT-1023	1 or 2
INDUCTIVE SENSOR ACCESSORIES†				
Inductive Sensor PNP Qk. Disconnect	OISP-011	OISP-011	OISP-011	1 or 2
Inductive Sensor NPN Qk. Disconnect	OISN-011	OISN-011	OISN-011	1 or 2
Quick. Disconnect 2M Cable Length	CABL-010	CABL-010	CABL-010	1 or 2
Quick. Disconnect 2M Cable Length	CABL-013	CABL-013	CABL-013	1 or 2
PNEUMATIC ACCESSORIES				
1/8 NPT Telescopic Airlines (up to 4")	OTAL-049	OTAL-049	OTAL-049	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 5")	OTAL-050	OTAL-050	OTAL-050	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 6")	OTAL-039	OTAL-039	OTAL-039	1, 2, 3 or 4
#10-32 Adjustable Flow Control	VLVF-007	VLVF-007	VLVF-007	1 or 2
G1/8 Telescopic Airlines (up to 100mm)	OTAL-051	OTAL-051	OTAL-051	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 125mm)	OTAL-052	OTAL-052	OTAL-052	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 160mm)	OTAL-045	OTAL-045	OTAL-045	1, 2, 3 or 4
M5 Adjustable Flow Control	VLVF-008	VLVF-008	VLVF-008	1 or 2
Cylinder Seal Repair Kit	SLKT-101	SLKT-103	SLKT-103	1
Viton® Cylinder Seal Repair Kit	SLKT-101V	SLKT-103V	SLKT-103V	1

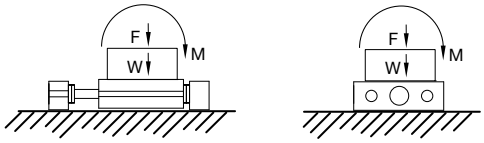
†Sensor and cable sold separately

DIRECTCONNECT™

Loading Specifications Table - Style DLB -010M, 12M, 16M -L

	10	10M	12	12M	16	16M
Maximum Payload (**W**) horizontal motion w/Shock Absorbers	15 lbs.	6.8 kg	30 lbs.	13.6 kg	45 lbs.	20.4 kg
Maximum Payload (**W**) vertical motion w/Shock Absorbers	7 lbs.	3.1 kg	15 lbs.	6.8 kg	22 lbs.	9.9 kg
Maximum Payload (**W**) horizontal motion w/Urethane Bumpers	5 lbs.	2.2 kg	10 lbs.	4.5 kg	15 lbs.	6.8 kg
Maximum Total Applied Load + Payload (**F**+**W**)	25 lbs.	111 N	40 lbs.	178 N	70 lbs.	311 N
Total Maximum Moment about any Axis (**M**)	75 in.-lbs.	8.4 N-m	150 in.-lbs.	16.9 N-m	300 in.-lbs.	33.9 N-m

F=Externally applied force
W=Weight of payload
F+**W**=Total force
M=Maximum moment



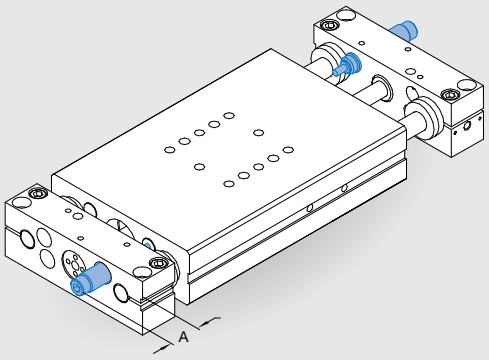
Shock Absorbers and Flow Controls are recommended for nearly all applications

Specifications	DLB-10	DLB-10M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	29 lbs.	129 N
Weight (Basic Unit)	3.34 lbs.	1.5 kg
Additional Weight per Stroke	0.08 lbs./in.	1.4g/mm
Cylinder Bore Diameter	3/4"	19mm
Shaft Diameter	0.375"	9.5mm

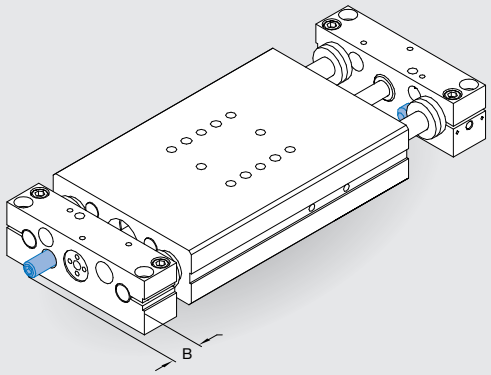
Specifications	DLB-12	DLB-12M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	57 lbs.	254 N
Weight (Basic Unit)	5.13 lbs.	2.3 kg
Additional Weight per Stroke	0.12 lbs./in.	2.1g/mm
Cylinder Bore Diameter	1.0"	25mm
Shaft Diameter	0.472"	12mm

Specifications	DLB-16	DLB-16M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	57 lbs.	254 N
Weight (Basic Unit)	7.30 lbs.	3.3 kg
Additional Weight per Stroke	0.19 lbs./in.	3.3g/mm
Cylinder Bore Diameter	1.0"	25mm
Shaft Diameter	0.630"	16mm

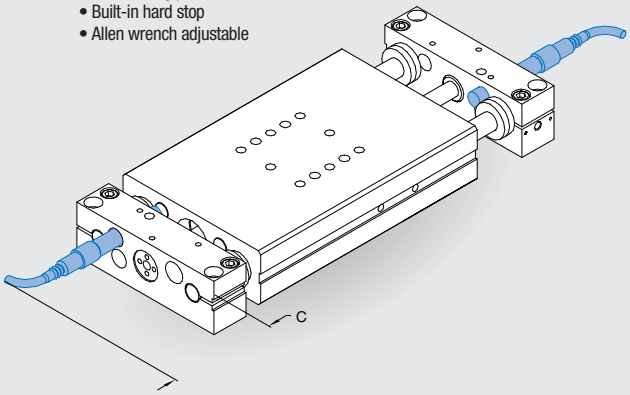
Accessory Mounting Technical Data



Shock Absorbers
- Full stroking piston rod
- Built-in hard stop
- Allen wrench adjustable

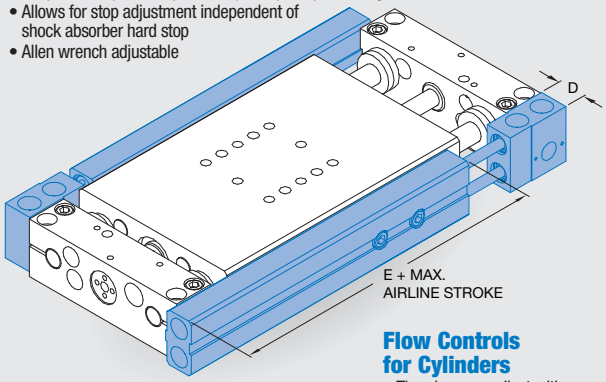


Adjustable Hard Stops
- For precision (+/-.001") hard stop end point positioning
- Allows for stop adjustment independent of shock absorber hard stop
- Allen wrench adjustable



Inductive Proximity Sensors
- 8mm diameter
- Threaded quick disconnect with built-in LED output
- PNP and NPN available

Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

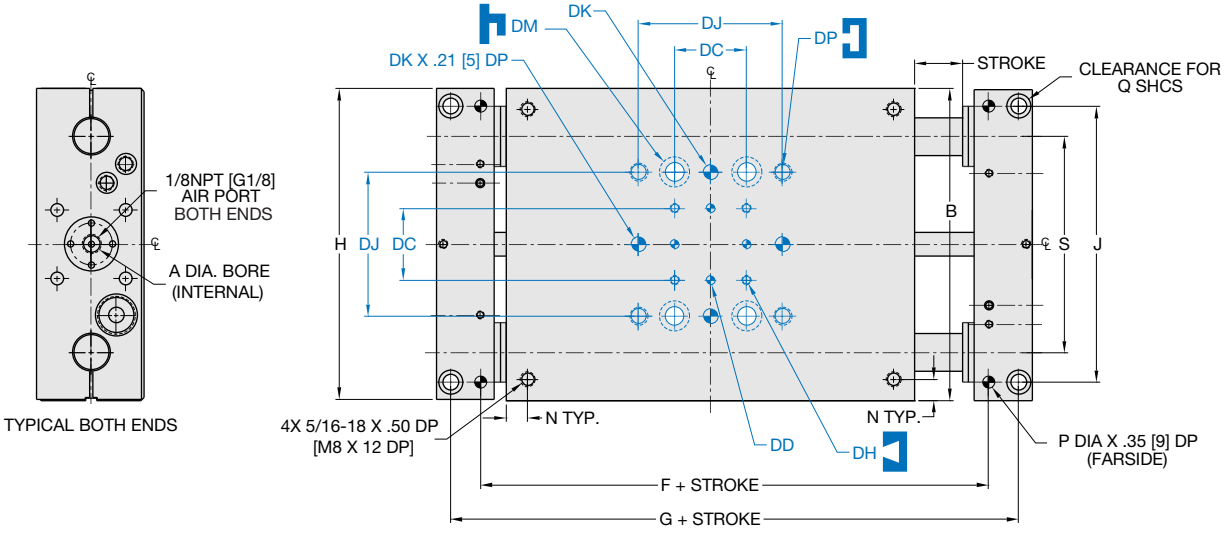


Telescoping Airlines
- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- Modules can be mounted on either side of slide
- 1/8 NPT or G1/8 pipe threads
- (2) user air ports per module

Flow Controls for Cylinders
- Thumb screw adjust with locking nut for adjusting cylinder speed
- #10-32 or M5 pipe threads

	A	B	C	D	E
DLB-10	.70"	.47	2.5	.577	3.60
DLB-12	.95"	.47	2.5	.577	3.60
DLB-16	.95"	.47	2.5	.577	3.60
DLB-10M	17.8mm	11.9	63.5	14.7	91.4
DLB-12M	24.1mm	11.9	63.5	14.7	91.4
DLB-16M	24.1mm	11.9	63.5	14.7	91.4

LONG BODY SLIDE DLB -20M, 25M -L
BUILT-IN REPAIRABLE CYLINDER



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

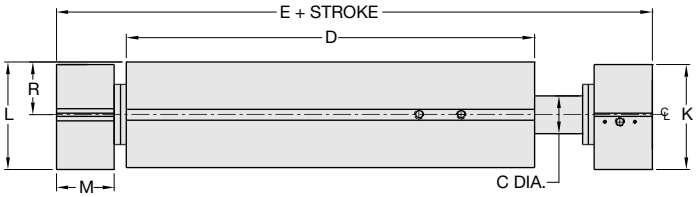
Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]



BASIC UNIT DIMENSIONS

MODEL #	A (BORE DIA.)	B (BODY SIZE)	C (SHAFT DIA.)	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
DLB-20	1 1/2	6.50	.787	8.50	11.42	9.5850	10.836	6.480	5.7500	2.180	2.236	1.210	.438	.2505	5/16	1.100	4.500
DLB-25	1 1/2	7.50	.984	9.50	12.84	10.7320	12.108	7.480	6.7500	2.180	2.236	1.420	.438	.3130	3/8	1.100	5.250
DLB-20M	38	165.1	20	215.9	290.1	243.46	275.2	164.6	146.05	55.4	56.8	30.7	11.1	6.00	M8	27.94	114.30
DLB-25M	38	190.5	25	241.3	326.1	272.59	307.5	190.0	171.45	55.4	56.8	36.1	11.1	8.00	M10	27.94	133.35

DIRECT CONNECT DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DC	1.500	38.1
DD	.1880 X .25 DP	5 mm H7 X 6 DP
DH	#10-32 X .34 DP	M5 X 8.5 DP
DJ	3.000	76.2
DK	.3130 X .37 DP	8 mm H7 X 9.4 DP
DM	Clr & C'bore for 3/8	Clr & C'bore for M10
DP	3/8-16 X .50 DP	M10 X 12 DP

How to Order: Basic Unit

BASIC MODEL | METRIC | STYLE | STROKE | SHAFTING

DLB - [ ] M - L - [ ] - [ ] - V - S

SIZE | BEARING | VITON® SEALS

SIZE **20, 25**

METRIC **M**

STYLE **L** Long body slide with built-in repairable cylinder

BEARING **B** Linear ball bearings
C Composite bushings

STROKE (inches)
DLB-20 **1-6** @ 1" increments
DLB-25 **1-7** @ 1" increments

Custom strokes available. Please consult factory.

STROKE (mm)
DLB-20M **25, 50, 80, 100, 125, 160**
DLB-25M **25, 50, 80, 100, 125, 160, 175**

VITON® **V** Viton® seals

SHAFTING **S** Corrosion resistant shafting

SAMPLE ORDER: DLB-20M-L-C-80-V

Ex: Base Slide, Size 20 Metric, Long Body Style w/Built-in Cylinder, Composite Bushings, 80mm Stroke, Viton® Seals

Accessories: (Order Separately)

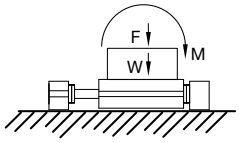
	DLB-20M	DLB-25M	QTY/SLIDE
SHOCK/STOP ACCESSORIES			
Shock Absorber (adjustable dampening)	SHOK-029	SHOK-029	1 or 2
Adjustable Hard Stop	DLT-1023	DLT-1023	1 or 2
INDUCTIVE SENSOR ACCESSORIES†			
Inductive Sensor PNP Qk. Disconnect	OISP-011	OISP-011	1 or 2
Inductive Sensor NPN Qk. Disconnect	OISN-011	OISN-011	1 or 2
Quick. Disconnect 2M Cable Length	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length	CABL-013	CABL-013	1 or 2
PNEUMATIC ACCESSORIES			
1/8 NPT Telescopic Airlines (up to 6")	OTAL-039	OTAL-039	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 12")	OTAL-040	OTAL-040	1, 2, 3 or 4
1/8 NPT Adjustable Flow Control	VLVF-004	VLVF-004	1 or 2
G1/8 Telescopic Airlines (up to 160mm)	OTAL-045	OTAL-045	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 300mm)	OTAL-046	OTAL-046	1, 2, 3 or 4
G1/8 Adjustable Flow Control	VLVF-005	VLVF-005	1 or 2
Cylinder Seal Repair Kit	SLKT-105	SLKT-105	1
Viton® Cylinder Seal Repair Kit	SLKT-105V	SLKT-105V	1

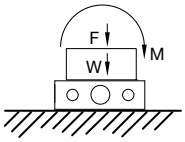
†Sensor and cable sold separately

Loading Specifications Table - Style DLB -20M, 25M -L

	20	20M	25	25M
Maximum Payload (**W**) horizontal motion using Shock Absorbers	60 lbs.	27.2 kg	100 lbs.	45.3 kg
Maximum Payload (**W**) vertical motion using Shock Absorbers	30 lbs.	13.6 kg	50 lbs.	22.0 kg
Maximum Payload (**W**) horizontal motion using Urethane Bumpers	20 lbs.	9.1 kg	25 lbs.	11.3 kg
Maximum Total Applied Load + Payload (**F**+**W**)	100 lbs.	444 N	150 lbs.	667 N
Total Maximum Moment about any Axis (**M**)	600 in.-lbs.	67.7 N-m	1200 in.-lbs.	135.5 N-m

F=Externally applied force
W=Weight of payload
F+**W**=Total force
M=Maximum moment



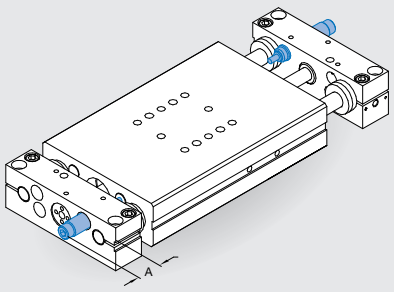


Shock Absorbers and Flow Controls are recommended for nearly all applications

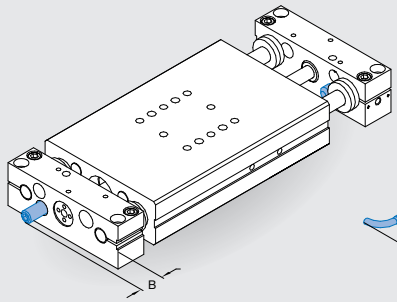
Specifications	DLB-20	DLB-20M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	126 lbs.	560 N
Weight (Basic Unit)	15.6 lbs.	7.1 kg
Additional Weight per Stroke	0.32 lbs./in.	5.6g/mm
Cylinder Bore Diameter	1-1/2"	38mm
Shaft Diameter	0.787"	20mm

Specifications	DLB-25	DLB-25M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	126 lbs.	560 N
Weight (Basic Unit)	21.4 lbs.	9.7 kg
Additional Weight per Stroke	0.47 lbs./in.	8.4g/mm
Cylinder Bore Diameter	1-1/2"	38mm
Shaft Diameter	0.984"	25mm

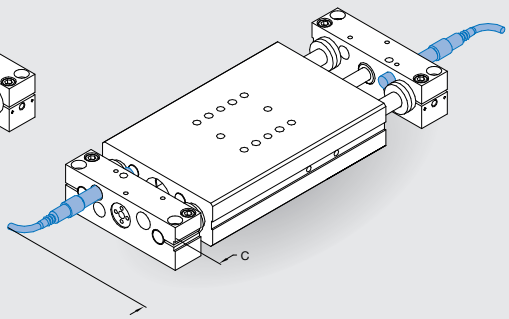
Accessory Mounting Technical Data



Shock Absorbers
- Full stroking piston rod
- Built-in hard stop
- Position adjustable
- Adjustable dampening

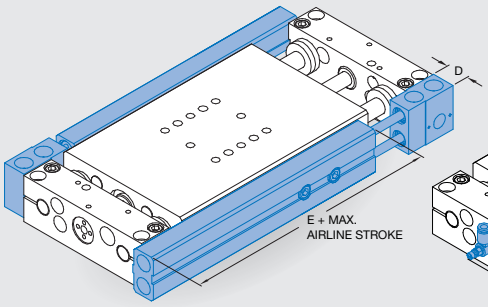


Adjustable Hard Stops
- For precision (+/-.001") hard stop end point positioning
- Allows for stop adjustment independent of shock absorber hard stop
- Allen wrench adjustable

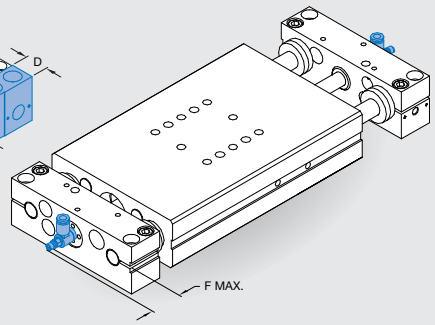


Inductive Proximity Sensors
- 8mm diameter
- Threaded quick disconnect with built-in LED output
- PNP and NPN available

Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length



Telescoping Airlines
- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- Modules can be mounted on either side of slide
- 1/8 NPT or G1/8 pipe threads
- (2) user air ports per module

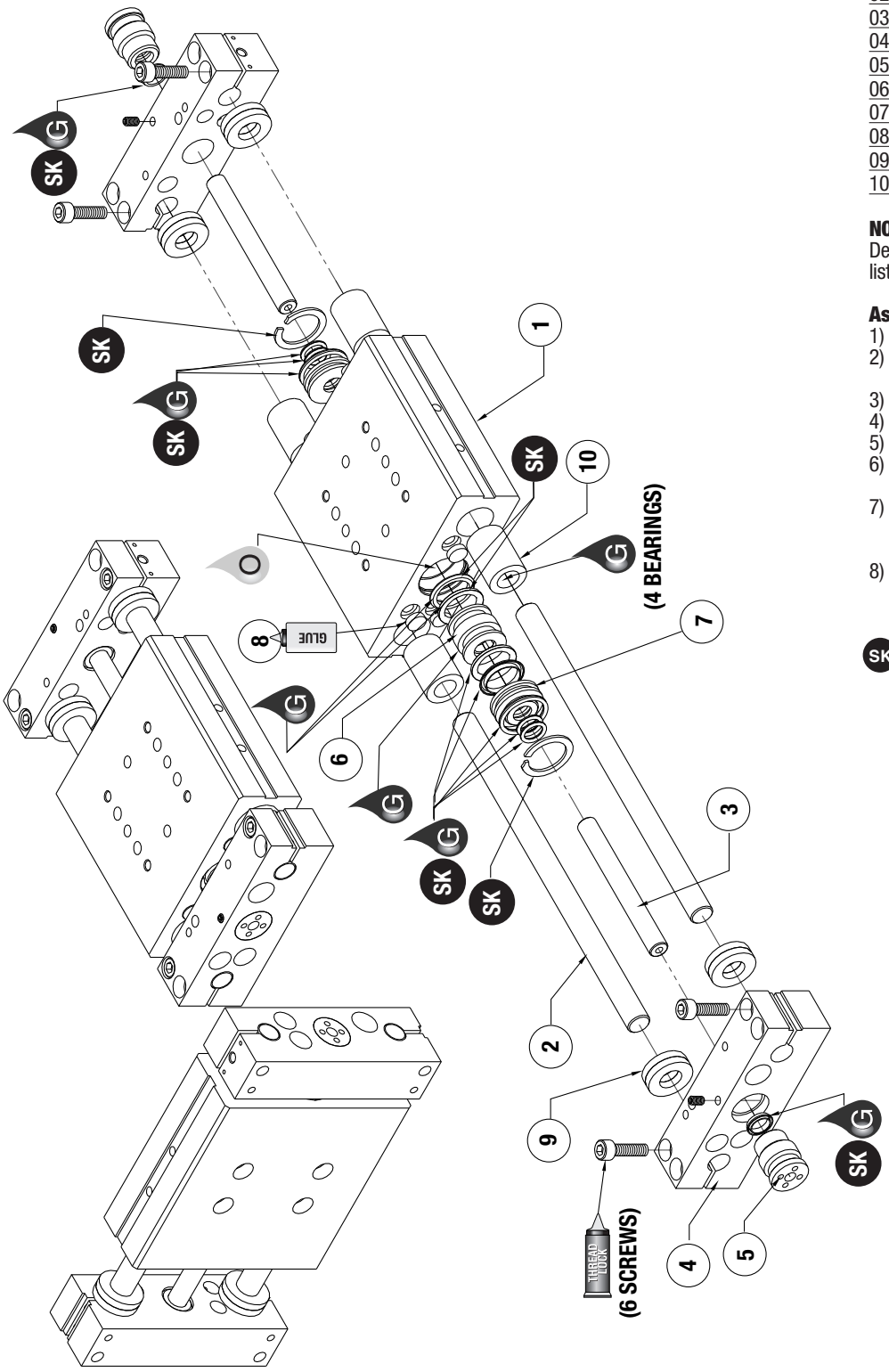


Flow Controls for Cylinders
- Thumb screw adjust with locking nut for adjusting cylinder speed
- 1/8 NPT or G1/8 pipe threads

	A	B	C	D	E	F
DLB-20	2.03"	.10	2.1	.577	3.60	1.25
DLB-25	1.82"	.10	1.9	.577	3.60	1.25
DLB-20M	51.6mm	2.5	53.8	14.7	91.4	31.8
DLB-25M	46.2mm	2.5	48.3	14.7	91.4	31.8

DLB-B & L Series Exploded View

Robohand



Item	Qty	Name
01	1	Body
02	2	Guide Shaft
03	2	Air Tube
04	2	End Block
05	2	Adapter, Internally Powered
06	1	Piston
07	2	Cap, Rod End
08	6	Stop Button
09	8	Shock Pad, Urethane
10	4	Bushing

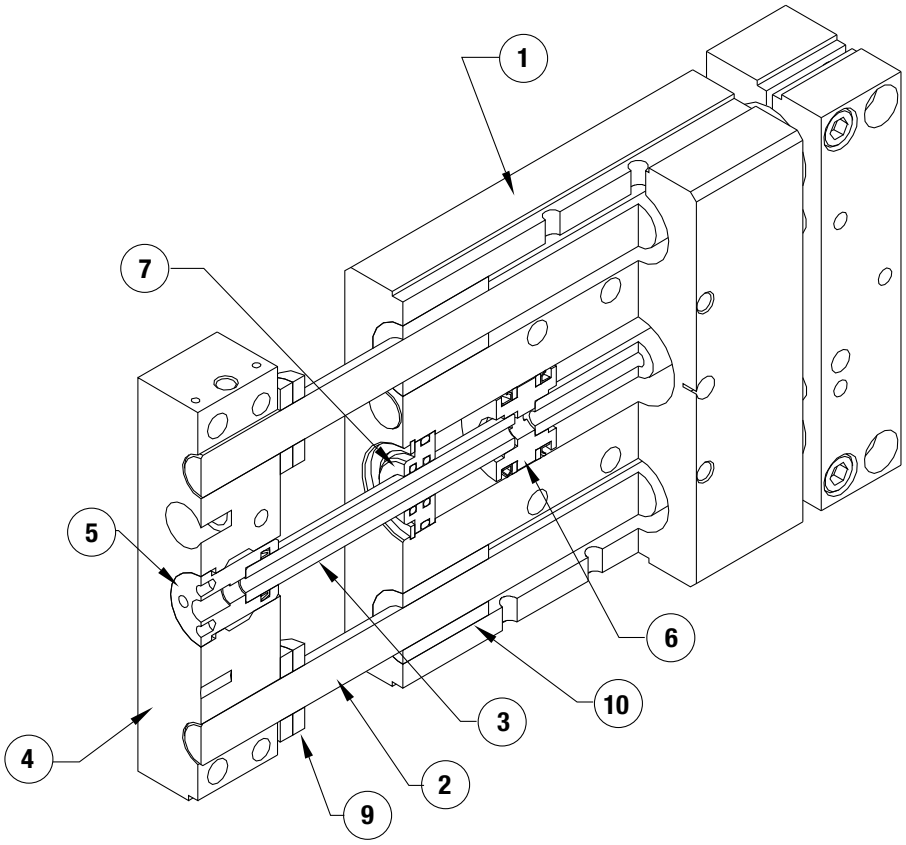
NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedure

1) Lubricate and install seals.
2) Install piston, air shafts, bearings, caps, and retainer rings into body.
3) Install guide shafts into bearings.
4) Insert air shafts to piston.
5) Slide bumpers onto shaft ends.
6) Slide end blocks onto shaft ends and tighten.
7) Attach air port adapter to end of each air shaft through center of each end block using spanner wrench.
8) Set air port adapters into places with set screw.

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection



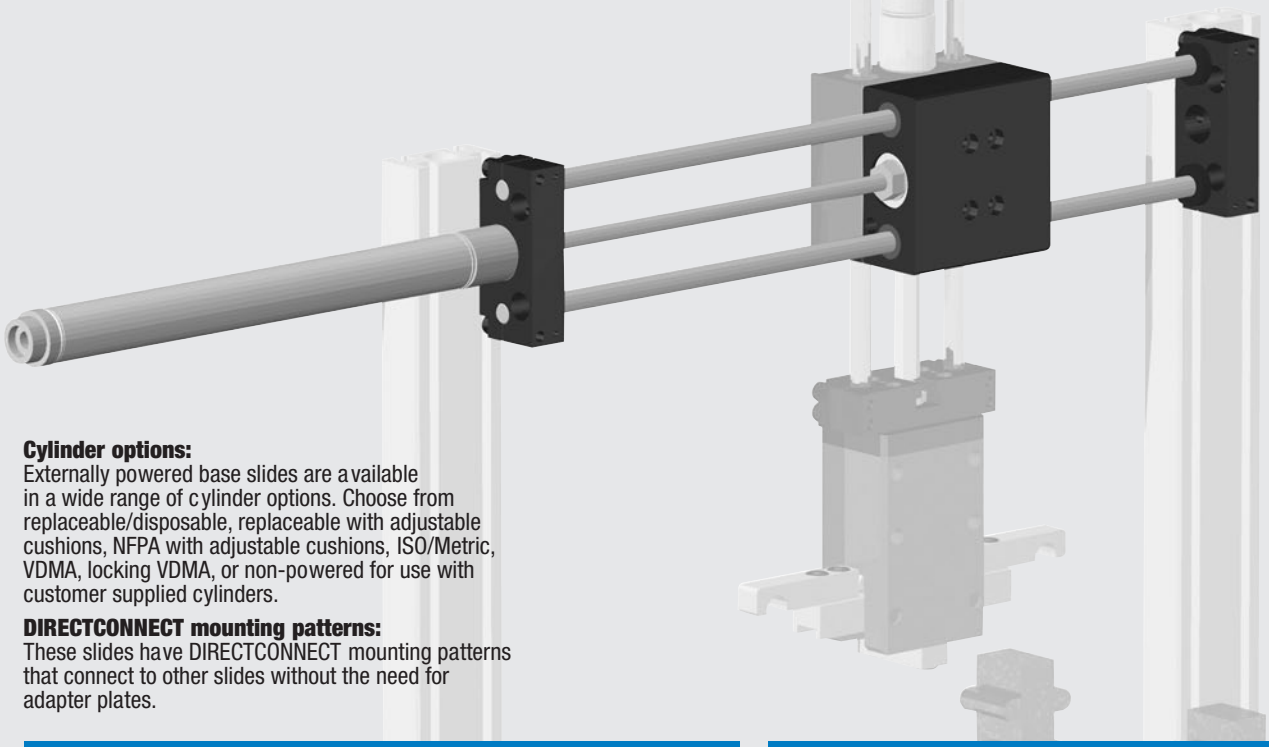
Item	Qty	Name
01	1	Body
02	2	Guide Shaft
03	2	Air Tube
04	2	End Block
05	2	Adapter, Internally Powered
06	1	Piston
07	2	Cap, Rod End
08	6	Stop Button
09	8	Shock Pad, Urethane
10	4	Bushing

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

NOTE: For accessory mounting information see Product Data Sheets.

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

Externally Powered Base Slides

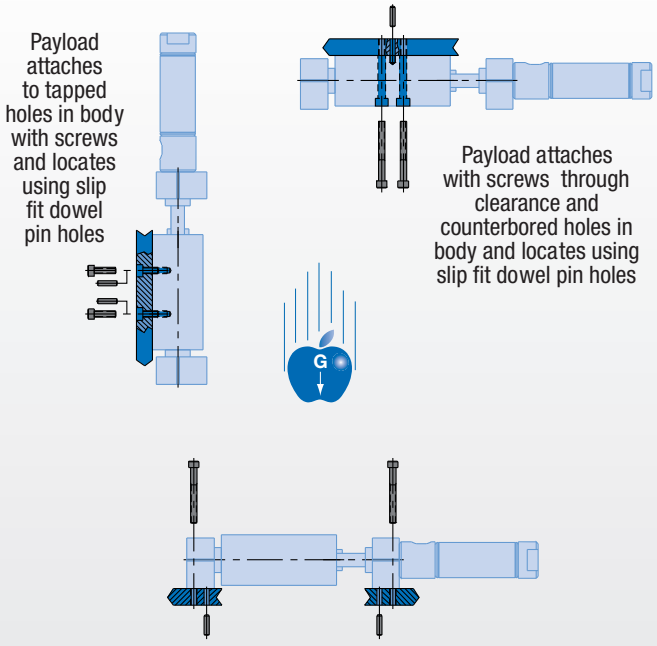


Cylinder options:
Externally powered base slides are available in a wide range of cylinder options. Choose from replaceable/disposable, replaceable with adjustable cushions, NFPA with adjustable cushions, ISO/Metric, VDMA, locking VDMA, or non-powered for use with customer supplied cylinders.

DIRECTCONNECT mounting patterns:
These slides have DIRECTCONNECT mounting patterns that connect to other slides without the need for adapter plates.

Mounting Information:

Mounts and operates in any orientation



End blocks mount with screws and locate with slip fit dowel pin holes

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range*	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary****
Air Humidity	**Low Moisture Content (dry)**

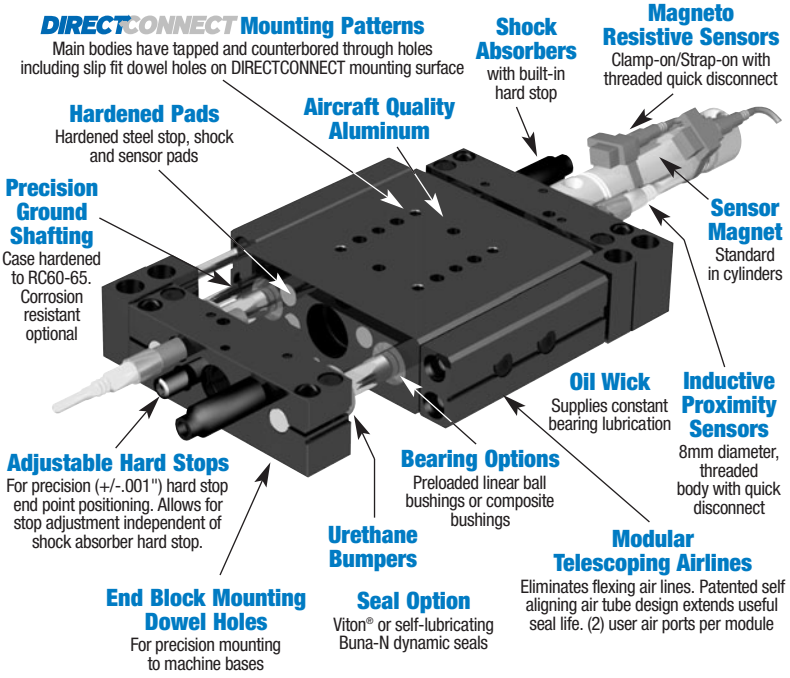
Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton Seals (optional)	**-20°~300° F**	**-30°~150° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles**†
Field Repairable	**No**
Seal Repair Kits Available	**No**

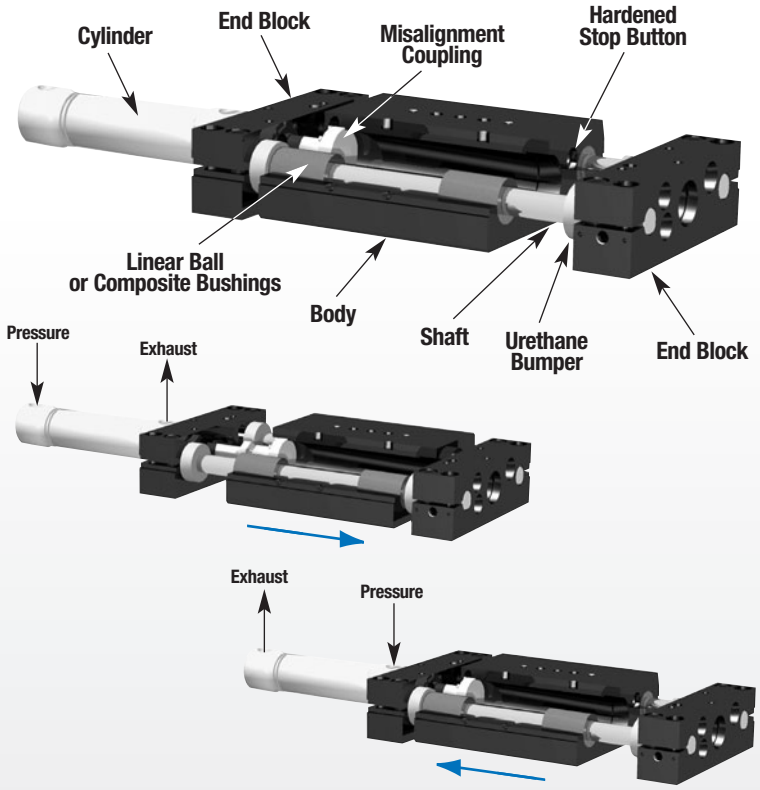
Application Restrictions
Flow controls, shock absorbers and urethane bumpers recommended for nearly all applications.
Use composite bushing in dirty or gritty environments.
Never use silicone based lubricants with composite bushings.

*Higher pressure possible. Consult factory with application details.
**Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features



Operating Principle

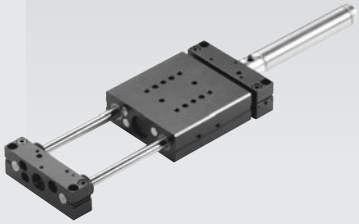


- A moveable body is supported by four linear bushings which slide on two hardened steel shafts.
- The shafts are supported on each end of the slide by two fixed end blocks.
- A double acting air cylinder is mounted to one of the end blocks.
- The piston rod of the cylinder is connected to the slide body with a misalignment coupling.
- When air pressure is applied to the cylinder the slide body moves.

Designed and manufactured in the USA

Style -T, A Replaceable Cyl.

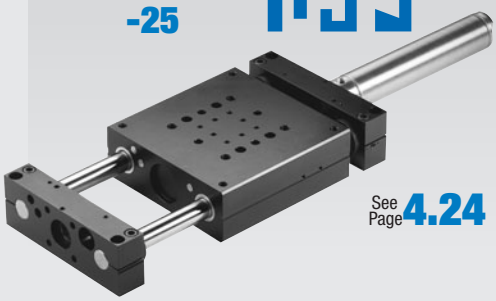
-10M (Metric **-A** only) (shown)
-12M (Metric **-A** only)
-16M (Metric **-A** only)



See Page **4.22**

Style -T, A Replaceable Cyl.

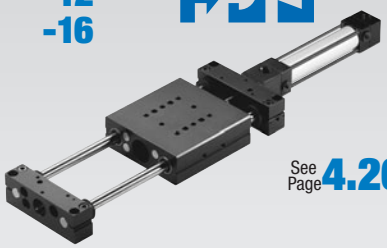
Size **-20** (shown)
-25



See Page **4.24**

Style -N, U Repairable Cyl.

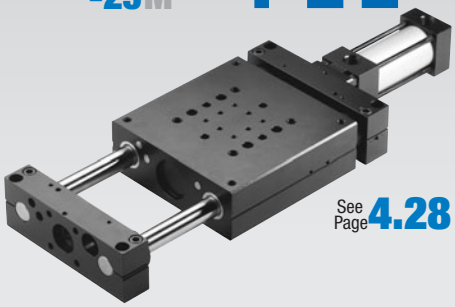
Size **-10** (shown)
-12
-16



See Page **4.26**

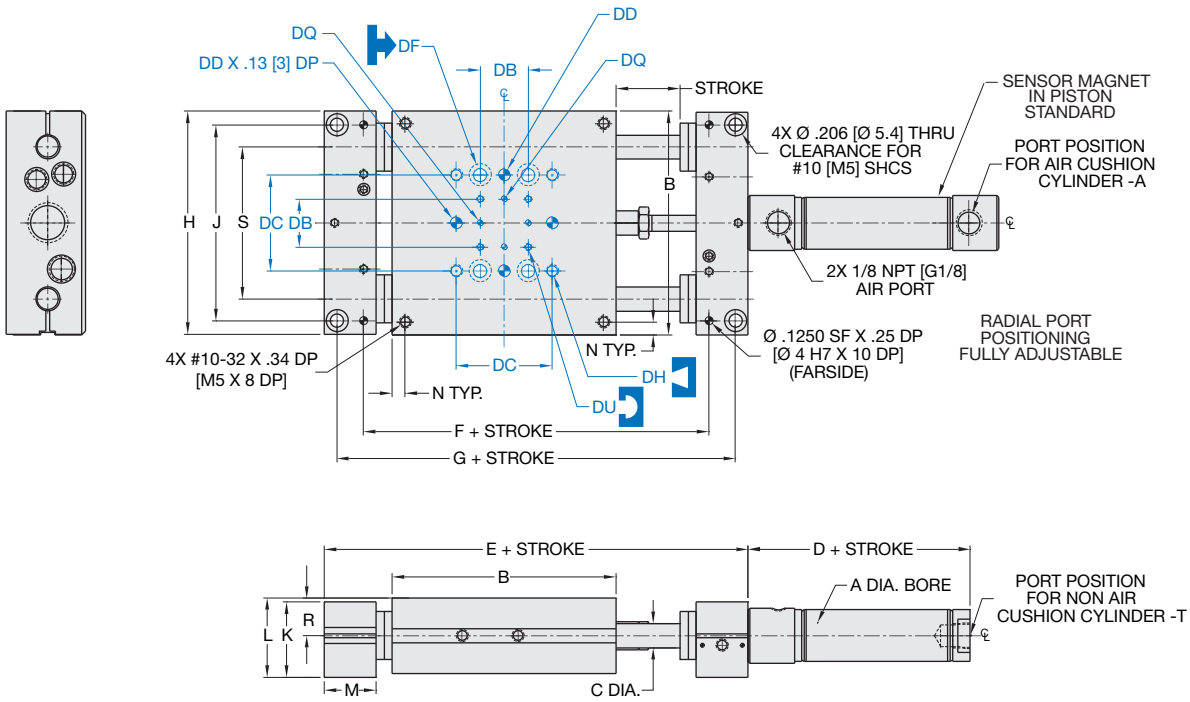
Style -N, R, U Repairable Cyl.

Size **-20M** (shown)
-25M



See Page **4.28**

BASE SLIDE DLB -10M, 12M, 16M -T, A
REPLACEABLE CYLINDER WITH OR W/O ADJUST. AIR CUSHIONS



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

BASIC UNIT DIMENSIONS

MODEL #	A (BORE DIA.)	B (BODY SIZE)	C (SHAFT DIA.)	D	E	F	G	H	J	K	L	M	N	R	S
DLB-10	3/4	3.50	.375	2.91	5.63	4.3975	5.228	3.485	3.060	1.178	1.245	.813	N/A	.594	2.375
DLB-12	1 1/16	4.00	.472	2.88	6.13	4.8975	5.728	3.985	3.500	1.615	1.657	.813	.375	.813	2.750
DLB-16	1 1/16	4.75	.630	2.88	6.88	5.6475	6.478	4.735	4.250	1.615	1.657	.813	.375	.813	3.250
DLB-10M	20	88.9	9.5	88.0	149.4	118.05	139.1	88.5	77.7	29.9	31.6	20.7	N/A	15.09	60.33
DLB-12M	25	101.6	12	91.5	162.1	130.75	151.8	101.2	88.9	41.0	42.1	20.7	9.5	20.65	69.85
DLB-16M	25	120.7	16	91.5	181.1	149.80	170.9	120.3	107.9	41.0	42.1	20.7	9.5	20.65	82.55

DIRECT CONNECT DIMENSIONS
STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DB	.750	19.1
DC	1.500	38.1
DD	.1880 x .25 DP	5mm H7 x 6 DP
DF	Clearance for #10	Clearance for M5
DH	#10-32 x .34 DP	M5 x 8.5 DP
DQ	.0940 x .078 DP	3H7 x 2 DP
DU	#4-40 X .25 DP	M3 X 6 DP

How to Order: Basic Unit

BASIC MODEL | METRIC | STYLE | STROKE

DLB - [ ] **M -** [ ] **-** [ ] **-** [ ] **-** [ ] **- S**

SIZE | BEARING | SHAFTING

SIZE 10, 12, 16

METRIC M

STYLE **T** Replaceable cylinder w/o adjustable air cushions (Not avail. in metric)
A Replaceable cylinder with adjustable air cushions

BEARING **B** Linear ball bearings
C Composite bushings

STROKE (inches)
DLB-10 **1-12** @ 1" increments
DLB-12 **1-16** @ 1" increments
DLB-16 **1-20** @ 1" increments

Custom strokes available. Please consult factory.

STROKE (mm)
DLB-10M **25, 50, 80, 100, 125, 160, 200, 250, 300**
DLB-12M **25, 50, 80, 100, 125, 160, 200, 250, 300, 320, 360, 400**
DLB-16M **25, 50, 80, 100, 125, 160, 200, 250, 300, 320, 360, 400, 500**

SHAFTING **S** Corrosion resistant shafting

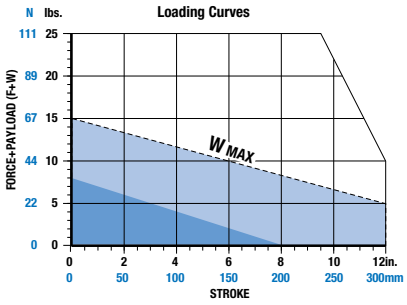
SAMPLE ORDER: DLB-10M-A-B-25
Ex: Base Slide, Size 10 Metric, Replaceable Cylinder w/Adjustable Air Cushions, Linear Ball Bushings, 25mm Stroke

Accessories: (Order Separately)

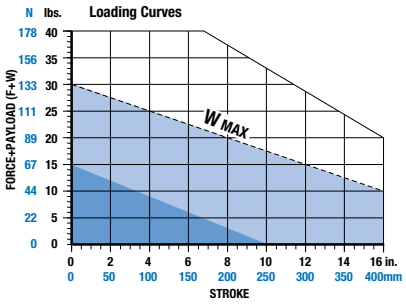
	DLB-10M	DLB-12M	DLB-16M	QTY/SLIDE
SHOCK/STOP ACCESSORIES				
Shock Absorber	SHOK-028	SHOK-010	SHOK-010	1 or 2
Adjustable Hard Stop	DLT-1023	DLT-1023	DLT-1023	1 or 2
INDUCTIVE SENSOR ACCESSORIES †				
Inductive Sensor PNP Qk. Disconnect	OISP-011	OISP-011	OISP-011	1 or 2
Inductive Sensor NPN Qk. Disconnect	OISN-011	OISN-011	OISN-011	1 or 2
Quick. Disconnect 2M Cable Length	CABL-010	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length	CABL-013	CABL-013	CABL-013	1 or 2
MAGNETIC SENSOR ACCESSORIES † **				
Magneto Resistive Sensor PNP Qk. Disc.	OHSP-005	OHSP-005	OHSP-005	1 or 2
Magneto Resistive Sensor NPN Qk. Disc.	OHSN-005	OHSN-005	OHSN-005	1 or 2
Quick. Disconnect 2M Cable Length	CABL-010	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length	CABL-013	CABL-013	CABL-013	1 or 2
PNEUMATIC ACCESSORIES				
1/8 NPT Telescopic Airlines (up to 6")	OTAL-039	OTAL-039	OTAL-039	1,2,3 or 4
1/8 NPT Telescopic Airlines (up to 12")	OTAL-040	OTAL-040	OTAL-040	1,2,3 or 4
1/8 NPT Telescopic Airlines (up to 18")	OTAL-041	OTAL-041	OTAL-041	1,2,3 or 4
1/8 NPT Telescopic Airlines (up to 24")	OTAL-042	OTAL-042	OTAL-042	1,2,3 or 4
1/8 NPT Adjustable Flow Control	VLVF-004	VLVF-004	VLVF-004	1 or 2
G1/8 Telescopic Airlines (up to 160mm)	OTAL-045	OTAL-045	OTAL-045	1,2,3 or 4
G1/8 Telescopic Airlines (up to 300mm)	OTAL-046	OTAL-046	OTAL-046	1,2,3 or 4
G1/8 Telescopic Airlines (up to 450mm)	OTAL-047	OTAL-047	OTAL-047	1,2,3 or 4
G1/8 Telescopic Airlines (up to 600mm)	OTAL-048	OTAL-048	OTAL-048	1,2,3 or 4
G1/8 Adjustable Flow Control	VLVF-005	VLVF-005	VLVF-005	1 or 2

†Sensor and cable sold separately **Piston magnet standard

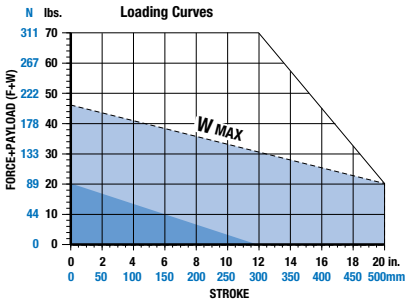
DLB-10M-T,A,U



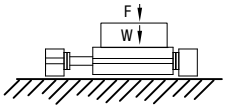
DLB-12M-T,A,U



DLB-16M-T,A,U



F=Externally applied force (lbs. or N)
W=Weight of payload (lbs. or N)
F+W=Total force (lbs. or N)



Shock Absorbers and Flow Controls are recommended for nearly all applications

(**W**) in this range use **Single Shock** in both directions

(**W**) in this range use **Bumpers or Cushioned Cylinder**

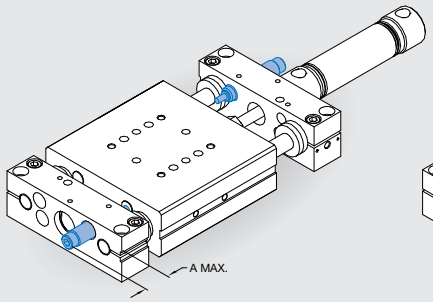
Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional accelera tion effect of gravity.

Specifications	DLB-10	DLB-10M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	31 lbs.	145 N
Weight (Basic Unit **-T**, **-A**)	1.98 lbs.	0.90 kg
Additional Weight per Stroke	0.09 lbs./in.	1.4 g/mm
Cylinder Bore Diameter	3/4"	20 mm
Shaft Diameter	0.375"	9.5 mm
Maximum Moment Load	75 in.-lbs.	8.4 N-m

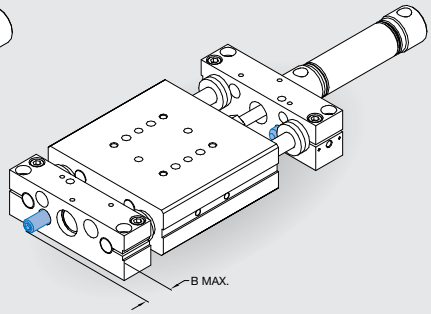
Specifications	DLB-12	DLB-12M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	65 lbs.	289 N
Weight (Basic Unit **-T**, **-A**)	3.73 lbs.	1.66 kg
Additional Weight per Stroke	0.15 lbs./in.	2.9 g/mm
Cylinder Bore Diameter	1-1/16"	25 mm
Shaft Diameter	0.472"	12 mm
Maximum Moment Load	150 in.-lbs.	16.9 N-m

Specifications	DLB-16	DLB-16M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	65 lbs.	289 N
Weight (Basic Unit **-T**, **-A**)	5.03 lbs.	2.3 kg
Additional Weight per Stroke	0.23 lbs./in.	4.2 g/mm
Cylinder Bore Diameter	1-1/16"	25 mm
Shaft Diameter	0.630"	16 mm
Maximum Moment Load	300 in.-lbs.	33.9 N-m

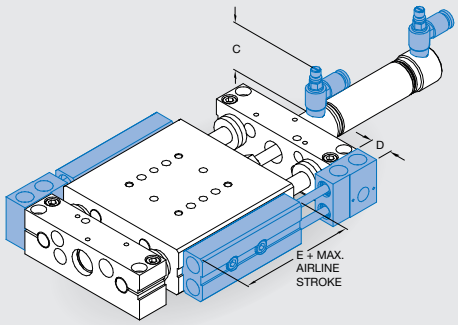
Accessory Mounting Technical Data



Shock Absorbers
- Full stroking piston rod
- Built-in hard stop
- Allen wrench adjustable

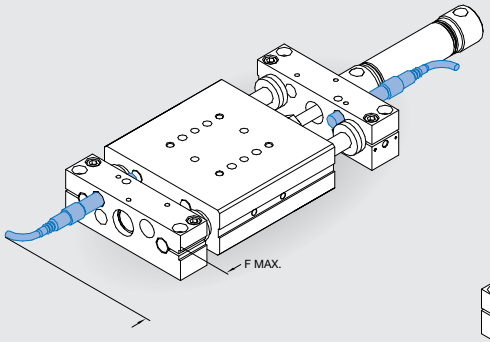


Adjustable Hard Stops
- For precision (+/-.001") hard stop end point positioning
- Allows for stop adjustment independent of shock absorber hard stop
- Allen wrench adjustable



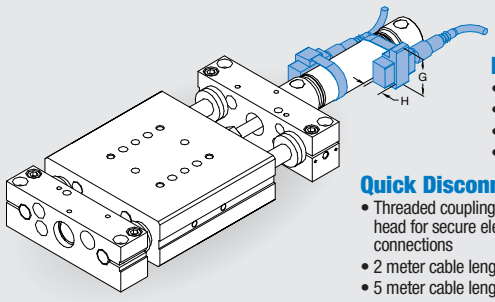
Telescoping Airlines
- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- Modules can be mounted on either side of slide
- 1/8 NPT or G1/8 pipe threads
- (2) user air ports per module

Flow Controls for Cylinders
- Thumb screw adjust with locking nut for adjusting cylinder speed
- 1/8 NPT or G1/8 pipe threads



Inductive Proximity Sensors
- 8mm diameter
- Threaded quick disconnect with built-in LED output
- PNP and NPN available

Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

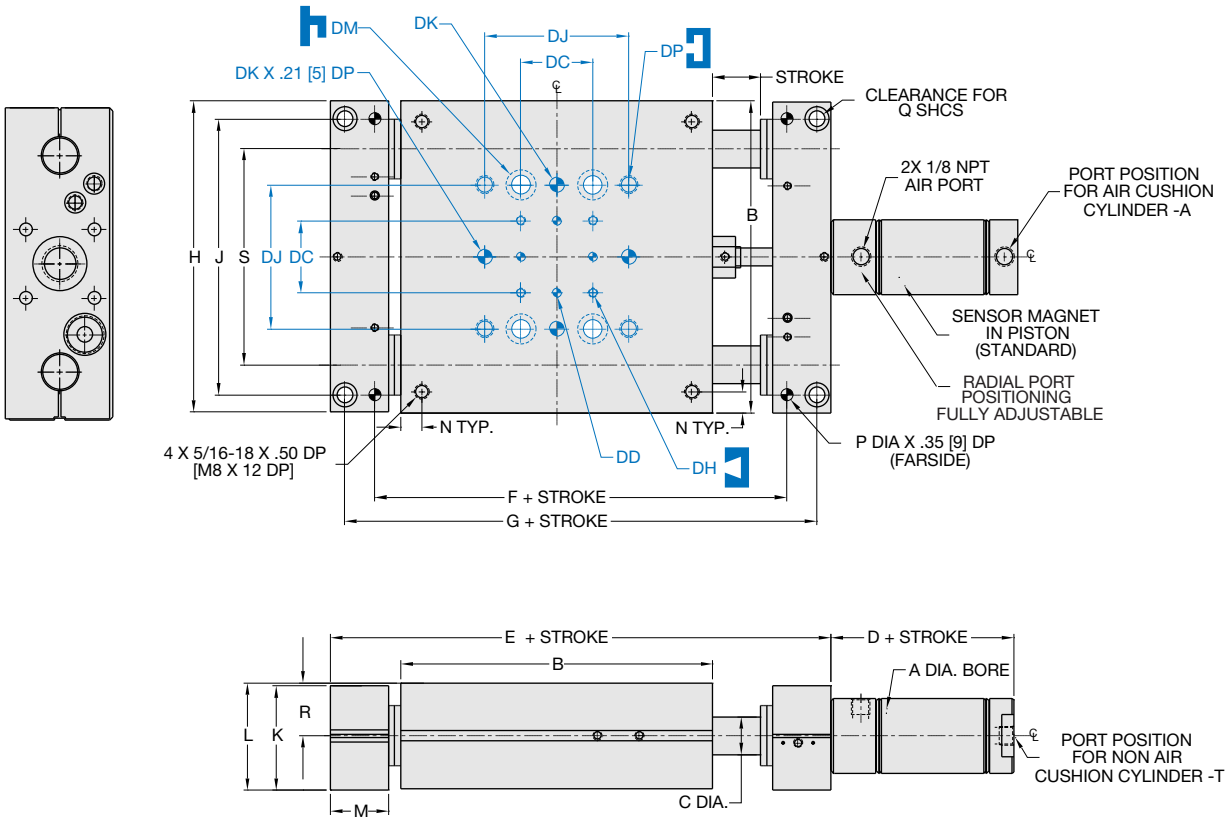


Magneto Resistive Sensors
- For all externally mounted cylinders
- Quick Disconnect with built in LED output
- Strap-on mounting kit included
- PNP and NPN available

Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

	A	B	C	D	E	F	G	H
DLB-10	.70"	.47	1.25	.577	3.60	2.5	1.00	.43
DLB-12	.95"	.47	1.25	.577	3.60	2.5	1.00	.43
DLB-16	.95"	.47	1.25	.577	3.60	2.5	1.00	.43
DLB-10M	17.8mm	11.9	31.8	14.7	91.4	63.5	25.4	10.9
DLB-12M	24.1mm	11.9	31.8	14.7	91.4	63.5	25.4	10.9
DLB-16M	24.1mm	11.9	31.8	14.7	91.4	63.5	25.4	10.9

BASE SLIDE DLB -20, 25 -T, A
REPLACEABLE CYLINDER WITH OR W/O ADJUST. AIR CUSHIONS



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

BASIC UNIT DIMENSIONS

MODEL #	A (BORE DIA.)	B (BODY SIZE)	C (SHAFT DIA.)	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
DLB-20	1 1/2	6.50	.787	3.0	9.42	7.5850	8.836	6.480	5.7500	2.180	2.236	1.210	.438	.2505	5/16	1.100	4.500
DLB-25	1 1/2	7.50	.984	3.0	10.84	8.7320	10.108	7.480	6.7500	2.180	2.236	1.420	.438	.3130	3/8	1.100	5.250

DIRECT CONNECT DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)
DC	1.500
DD	.1880 x .25 DP
DH	#10-32 x .38 DP
DJ	3.000
DK	.3130 x .37 DP
DM	Clearance for 3/8
DP	3/8-16 x .50 DP

How to Order: Basic Unit

BASIC MODEL — STYLE — STROKE

DLB - [ ] - [ ] - [ ] - [ ] - **S**

SIZE — BEARING — SHAFTING

SIZE **20, 25**

STYLE **T** Replaceable cylinder w/o adjustable air cushions
A Replaceable cylinder with adjustable air cushions

BEARING **B** Linear ball bearings
C Composite bushings

STROKE (inches)
DLB-20 **1-24** @ 1" increments
DLB-25 **1-26** @ 1" increments

Custom strokes available. Please consult factory.

SHAFTING **S** Corrosion resistant shafting

SAMPLE ORDER: DLB-20-A-B-8

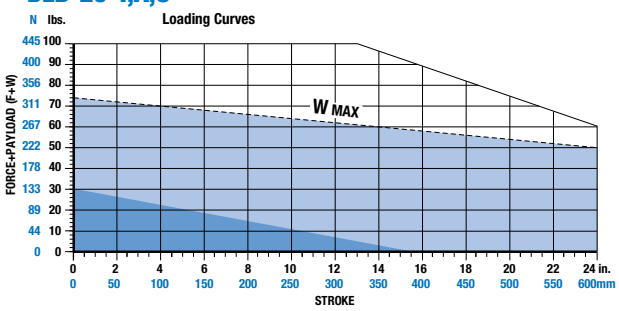
Ex: Base Slide, Size 20, Replaceable Cylinder w/Adjustable Air Cushions, Linear Ball Bushings, 8 inch Stroke

Accessories: (Order Separately)

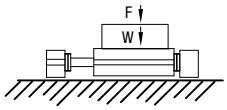
	DLB-20	DLB-25	QTY/SLIDE
SHOCK/STOP ACCESSORIES			
Shock Absorber (adjustable dampening)	SHOK-029	SHOK-029	1 or 2
Adjustable Hard Stop	DLT-1023	DLT-1023	1 or 2
INDUCTIVE SENSOR ACCESSORIES †			
Inductive Sensor PNP Qk. Disconnect	OISP-011	OISP-011	1 or 2
Inductive Sensor NPN Qk. Disconnect	OISN-011	OISN-011	1 or 2
Quick. Disconnect 2M Cable Length	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length	CABL-013	CABL-013	1 or 2
MAGNETIC SENSOR ACCESSORIES † **			
Magneto Resistive Sensor PNP Qk. Disc.	OHSP-005	OHSP-005	1 or 2
Magneto Resistive Sensor NPN Qk. Disc.	OHSN-005	OHSN-005	1 or 2
Quick. Disconnect 2M Cable Length	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length	CABL-013	CABL-013	1 or 2
PNEUMATIC ACCESSORIES			
1/8 NPT Telescopic Airlines (up to 6")	OTAL-039	OTAL-039	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 12")	OTAL-040	OTAL-040	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 18")	OTAL-041	OTAL-041	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 24")	OTAL-042	OTAL-042	1, 2, 3 or 4
1/8 NPT Adjustable Flow Control	VLVF-004	VLVF-004	1 or 2

†Sensor and cable sold separately **Piston magnet standard

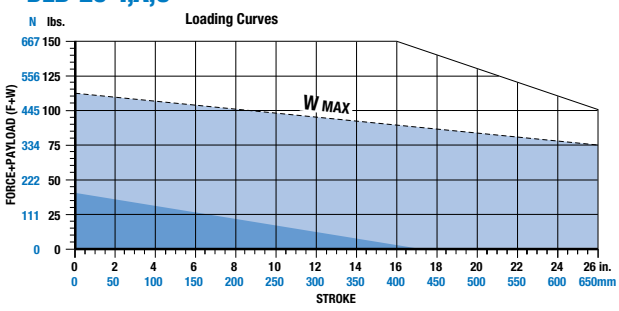
DLB-20-T,A,U



F=Externally applied force (lbs. or N)
W=Weight of payload (lbs. or N)
F+**W**=Total force (lbs. or N)



DLB-25-T,A,U



Shock Absorbers and Flow Controls are recommended for nearly all applications

(**W**) in this range use **Single Shock** in both directions

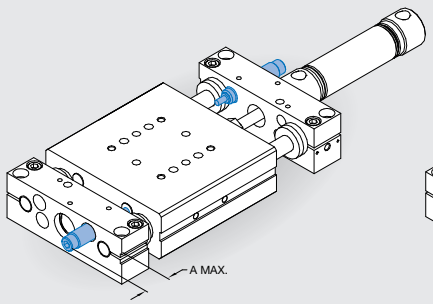
(**W**) in this range use **Bumpers or Cushioned Cylinder**

Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional accelera tion effect of gravity.

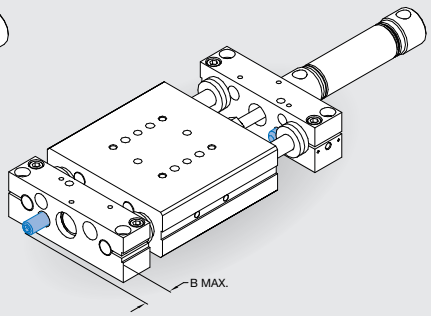
Specifications	DLB-20
Maximum Air Pressure	100 psi
Thrust Force @ 80psi/5.5bar	130 lbs.
Weight (Basic Unit **-T**, **-A**)	12.6 lbs.
Additional Weight per Stroke	0.38 lbs./in.
Cylinder Bore Diameter	1-1/2"
Shaft Diameter	0.787"
Maximum Moment Load	600 in.-lbs.

Specifications	DLB-25
Maximum Air Pressure	100 psi
Thrust Force @ 80psi/5.5bar	130 lbs.
Weight (Basic Unit **-T**, **-A**)	17.7 lbs.
Additional Weight per Stroke	0.53 lbs./in.
Cylinder Bore Diameter	1-1/2"
Shaft Diameter	0.984"
Maximum Moment Load	1200 in.-lbs.

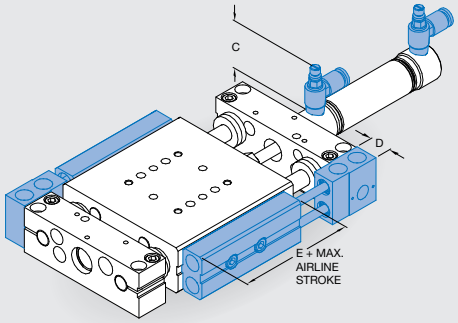
Accessory Mounting Technical Data



Shock Absorbers
- Full stroking piston rod
- Built-in hard stop
- Position adjustable
- Adjustable dampening

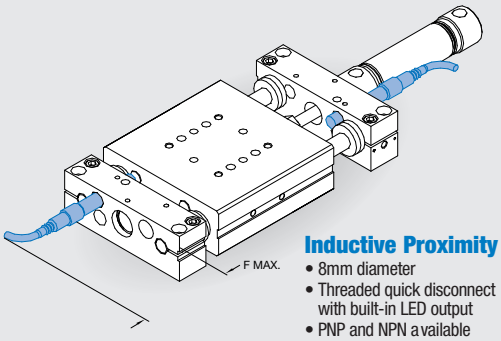


Adjustable Hard Stops
- For precision (+/-.001") hard stop end point positioning
- Allows for stop adjustment independent of shock absorber hard stop
- Allen wrench adjustable



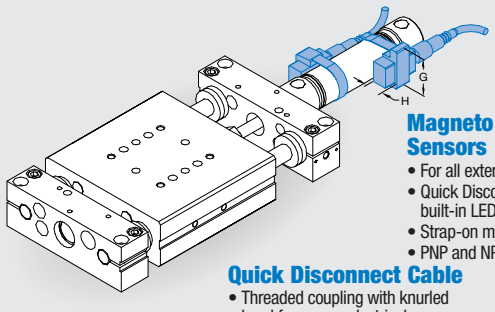
Telescoping Airlines
- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- Modules can be mounted on either side of slide
- 1/8 NPT pipe threads
- (2) user air ports per module

Flow Controls for Cylinders
- Thumb screw adjust with locking nut for adjusting cylinder speed
- 1/8 NPT pipe threads



Inductive Proximity Sensors
- 8mm diameter
- Threaded quick disconnect with built-in LED output
- PNP and NPN available

Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

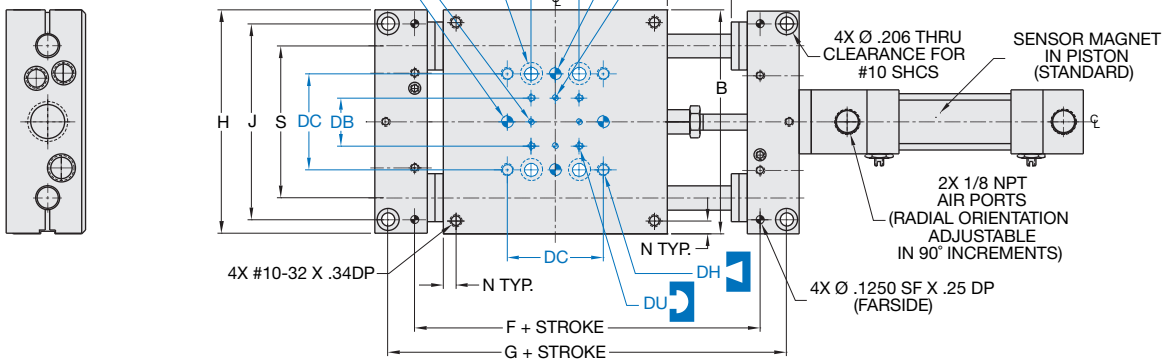


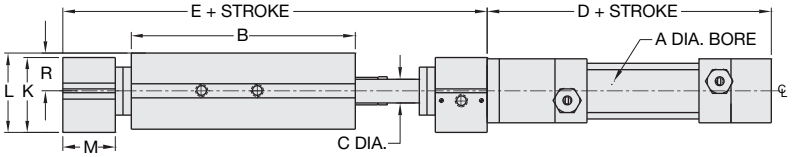
Magneto Resistive Sensors
- For all externally mounted cylinders
- Quick Disconnect with built-in LED output
- Strap-on mounting kit included
- PNP and NPN available

Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

	A	B	C	D	E	F	G	H
DLB-20	2.03"	.10	1.25	.577	3.60	2.12	1.00	.43
DLB-25	1.82"	.10	1.25	.577	3.60	1.90	1.00	.43

BASE SLIDE DLB -10M, 12M, 16M -N, U
REPAIRABLE (NFPA STYLE) CYLINDER W/FIXED AIR CUSHIONS





UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

BASIC UNIT DIMENSIONS

MODEL #	A (BORE DIA.)	B (BODY SIZE)	C (SHAFT DIA.)	D	E	F	G	H	J	K	L	M	N	R	S
DLB-10	3/4	3.50	.375	3.44	5.63	4.3975	5.228	3.485	3.0600	1.178	1.245	.813	N/A	.594	2.375
DLB-12	1 1/8	4.00	.472	3.44	6.13	4.8975	5.728	3.985	3.5000	1.615	1.657	.813	.375	.813	2.750
DLB-16	1 1/8	4.75	.630	3.44	6.88	5.6475	6.478	4.735	4.2500	1.615	1.657	.813	.375	.813	3.250

DIRECT CONNECT DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)
DB	.750
DC	1.500
DD	.1880 x .25 DP
DF	Clearance for #10
DH	#10-32 x .34 DP
DQ	.0940 x .078 DP
DU	#4-40 X .25 DP

How to Order: Basic Unit

BASIC MODEL | METRIC | STYLE | STROKE

DLB - [ ] **M** - [ ] - [ ] - [ ] - **S**

SIZE | BEARING | SHAFTING

SIZE **10, 12, 16**

STYLE **N** Repairable NFPA cylinder w/fixed air cushions (Not available in Metric)

U Non-powered unit (Without cylinder. **Metric Units:** Mount VDMA cylinder directly. NFPA not available. **Imperial Units:** Mount NFPA cylinders using NFPA mounting kit. VDMA not available.)

BEARING **B** Linear ball bearings
C Composite bushings

STROKE (inches)
DLB-10 **1-12** @ 1" increments
DLB-12 **1-16** @ 1" increments
DLB-16 **1-20** @ 1" increments

Custom strokes available. Please consult factory.

STROKE (mm)
DLB-10M **25, 50, 80, 100, 125, 160, 200, 250, 300**
DLB-12M **25, 50, 80, 100, 125, 160, 200, 250, 300, 320, 360, 400**
DLB-16M **25, 50, 80, 100, 125, 160, 200, 250, 300, 320, 360, 400, 500**

SHAFTING **S** Corrosion resistant shafting

SAMPLE ORDER: DLB-10-N-B-6
Ex: Base Slide, Size 10, Repairable Cylinder w/Fixed Air Cushions, Linear Ball Bushings, 6 Inch Stroke

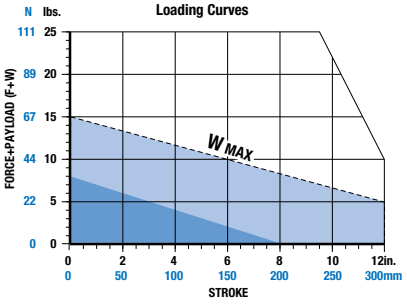
Accessories: (Order Separately)

	DLB-10	DLB-12	DLB-16	QTY/SLIDE
SHOCK/STOP ACCESSORIES				
Shock Absorber	SHOK-028	SHOK-010	SHOK-010	1 or 2
Adjustable Hard Stop	DLT-1023	DLT-1023	DLT-1023	1 or 2
INDUCTIVE SENSOR ACCESSORIES†				
Inductive Sensor PNP Qk. Disconnect	OISP-011	OISP-011	OISP-011	1 or 2
Inductive Sensor NPN Qk. Disconnect	OISN-011	OISN-011	OISN-011	1 or 2
Quick. Disconnect 2M Cable Length	CABL-010	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length	CABL-013	CABL-013	CABL-013	1 or 2
MAGNETIC SENSOR ACCESSORIES† **				
Magneto Resistive Sensor PNP Qk. Disc.	OHSP-005	OHSP-005	OHSP-005	1 or 2
Magneto Resistive Sensor NPN Qk. Disc.	OHSN-005	OHSN-005	OHSN-005	1 or 2
Quick. Disconnect 2M Cable Length	CABL-010	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length	CABL-013	CABL-013	CABL-013	1 or 2
PNEUMATIC ACCESSORIES				
NFPA Cylinder Mounting Kit (**-U** only)	ODLT-001	ODLT-002	ODLT-002	1
1/8 NPT Telescopic Airlines (up to 6")	OTAL-039	OTAL-039	OTAL-039	1,2,3 or 4
1/8 NPT Telescopic Airlines (up to 12")	OTAL-040	OTAL-040	OTAL-040	1,2,3 or 4
1/8 NPT Telescopic Airlines (up to 18")	OTAL-041	OTAL-041	OTAL-041	1,2,3 or 4
1/8 NPT Telescopic Airlines (up to 24")	OTAL-042	OTAL-042	OTAL-042	1,2,3 or 4
1/8 NPT Adjustable Flow Control	VLVF-004	VLVF-004	VLVF-004	1 or 2

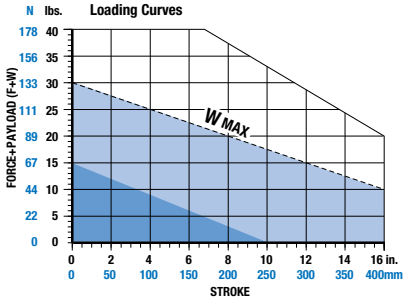
†Sensor and cable sold separately **Piston magnet standard

BASE SLIDE DLB -10M, 12M, 16M -N, UNREPAIRABLE (NFPA STYLE) CYLINDER W/ADJ. AIR CUSHIONS

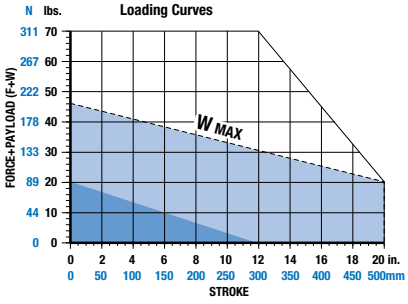
DLB-10-N,U



DLB-12-N,U



DLB-16-N,U



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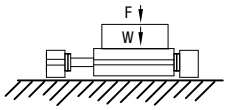
W=Weight of payload (lbs. or N)
F+W=Total force (lbs. or N)



Shock Absorbers and Flow Controls are recommended for nearly all applications

(W) in this range use **Single Shock** in both directions

(W) in this range use **Bumpers or Cushioned Cylinder**

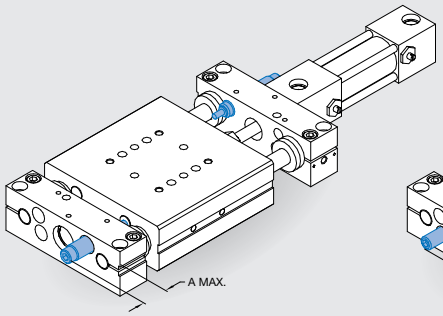
Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional accelera tion effect of gravity.

Specifications	DLB-10
Maximum Air Pressure	100 psi
Thrust Force @ 80psi/5.5bar	29 lbs.
Weight (Basic Unit **-N**)	2.01 lbs.
Additional Weight per Stroke	0.08 lbs./in.
Cylinder Bore Diameter	3/4"
Shaft Diameter	0.375"
Maximum Moment Load	75 in.-lbs.

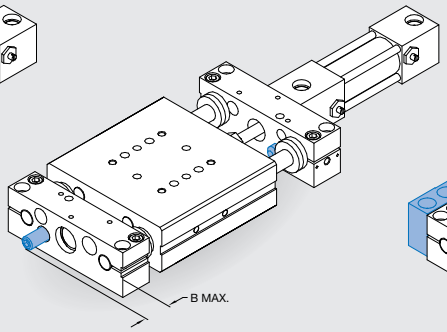
Specifications	DLB-12
Maximum Air Pressure	100 psi
Thrust Force @ 80psi/5.5bar	71 lbs.
Weight (Basic Unit **-N**)	3.79 lbs.
Additional Weight per Stroke	0.16 lbs./in.
Cylinder Bore Diameter	1-1/8"
Shaft Diameter	0.472"
Maximum Moment Load	150 in.-lbs.

Specifications	DLB-16
Maximum Air Pressure	100 psi
Thrust Force @ 80psi/5.5bar	71 lbs.
Weight (Basic Unit **-N**)	5.09 lbs.
Additional Weight per Stroke	0.24 lbs./in.
Cylinder Bore Diameter	1-1/8"
Shaft Diameter	0.630"
Maximum Moment Load	300 in.-lbs.

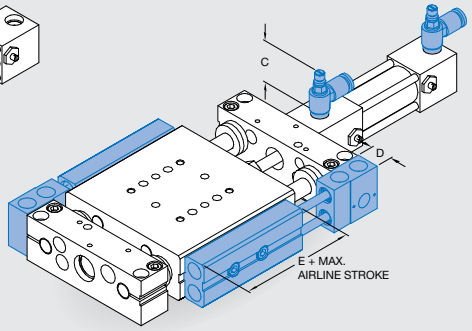
Accessory Mounting Technical Data



Shock Absorbers
- Full stroking piston rod
- Built-in hard stop
- Allen wrench adjustable

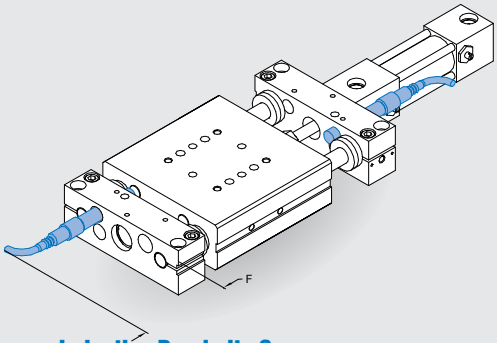


Adjustable Hard Stops
- For precision (+/-.001") hard stop end point positioning
- Allows for stop adjustment independent of shock absorber hard stop
- Allen wrench adjustable



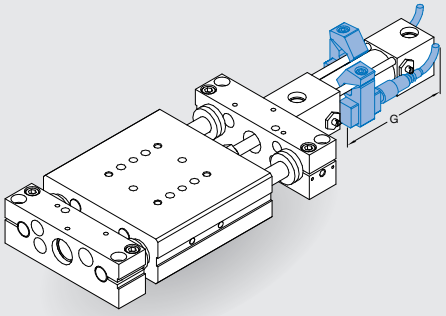
Flow Controls for Cylinders
- Thumb screw adjust with locking nut for adjusting cylinder speed
- 1/8 NPT pipe threads

Telescoping Airlines
- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- Modules can be mounted on either side of slide
- 1/8 NPT pipe threads
- (2) user air ports per module



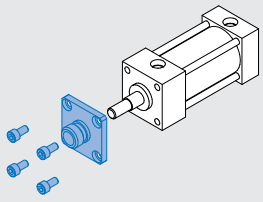
Inductive Proximity Sensors
- 8mm diameter
- Threaded quick disconnect with built-in LED output
- PNP and NPN available

Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length



Magneto Resistive Sensors
- For all externally mounted cylinders
- Quick Disconnect with built in LED output
- Clamp-on mounting kit included
- PNP and NPN available

Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length



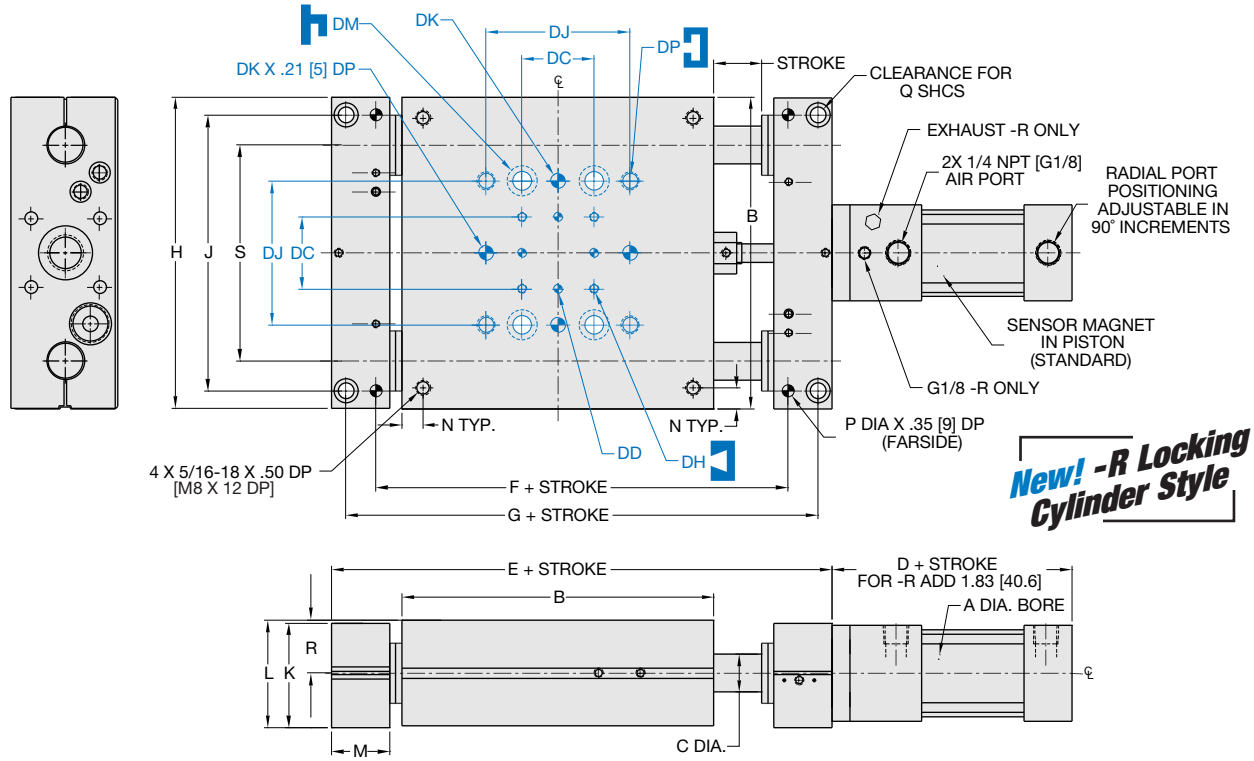
NFPA Cylinder Mounting Kit
- Used to mount standard face mounted NFPA cylinders to non-powered units (**-U**)

	A	B	C	D	E	F	G
DLB-10	.70"	.47	1.25	.577	3.60	2.5	3.00
DLB-12	.95"	.47	1.25	.577	3.60	2.5	3.00
DLB-16	.95"	.47	1.25	.577	3.60	2.5	3.00
DLB-10M	17.8mm	11.9	31.8	14.7	91.4	63.5	76.2
DLB-12M	24.1mm	11.9	31.8	14.7	91.4	63.5	76.2
DLB-16M	24.1mm	11.9	31.8	14.7	91.4	63.5	76.2

DIRECTCONNECT™

BASE SLIDE DLB -20M, 25M -N, R, U
REPAIRABLE (NFPA/VDMA) CYLINDER W/ ADJ. AIR CUSHIONS

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

BASIC UNIT DIMENSIONS

BORE DIA. -N / BORE DIA. -R / BODY SIZE / SHAFT DIA.

MODEL #	A		B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
DLB-20	1 1/2	32mm	6.50	.787	3.63	9.42	7.5850	8.836	6.480	5.7500	2.180	2.236	1.210	.438	.2505	5/16	1.100	4.500
DLB-25	1 1/2	32mm	7.50	.984	3.63	10.84	8.7320	10.108	7.480	6.7500	2.180	2.236	1.420	.438	.3130	3/8	1.100	5.250
DLB-20M	32	32	165.1	20	98.0	239.3	192.66	224.4	164.6	146.05	55.4	56.8	30.7	11.1	6.00	M8	27.94	114.30
DLB-25M	32	32	190.5	25	98.0	275.3	221.79	256.7	190.0	171.45	55.4	56.8	36.1	11.1	8.00	M10	27.94	113.35

DIRECTCONNECT DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DC	1.500	38.1
DD	.1880 x .25 DP	5mm H7 x 6 DP
DH	#10-32 x .38 DP	M5 x 9 DP
DJ	3.000	76.2
DK	.3130 x .37 DP	8mm H7 x 9.4 DP
DM	Clearance for 3/8	Clearance for M10
DP	3/8-16 X .50 DP	M10 X 12 DP

How to Order: Basic Unit

BASIC MODEL / METRIC / STYLE / STROKE

DLB - [SIZE] M - [STYLE] - [BEARING] - [SHAFTING] - S

SIZE **20, 25**

METRIC **M**

STYLE
- **N** Repairable NFPA/VDMA cylinder w/adjustable air cushions
- **R** Repairable locking VDMA cylinder w/adjustable air cushions
- **U** Non-powered unit (Without cylinder. **Metric Units:** Mount VDMA cylinder directly. NFPA not available. **Imperial Units:** Mount NFPA cylinders using NFPA mouting kit. VDMA not available.)

BEARING
- **B** Linear ball bearings
- **C** Composite bushings

STROKE (inches)
DLB-20 **1-24** @ 1" increments
DLB-25 **1-26** @ 1" increments

Custom strokes available. Please consult factory.

STROKE (mm)
DLB-20M **25, 50, 80, 100, 125, 160, 200, 250, 300, 320, 360, 400, 500**
DLB-25M **25, 50, 80, 100, 125, 160, 200, 250, 300, 320, 360, 400, 500**

SHAFTING **S** Corrosion resistant shafting

SAMPLE ORDER: DLB-20-N-B-12

Ex: Base Slide, Size 20, Repairable NFPA Cylinder w/Adjustable Air Cushions, Linear Ball Bushings, Inch Stroke

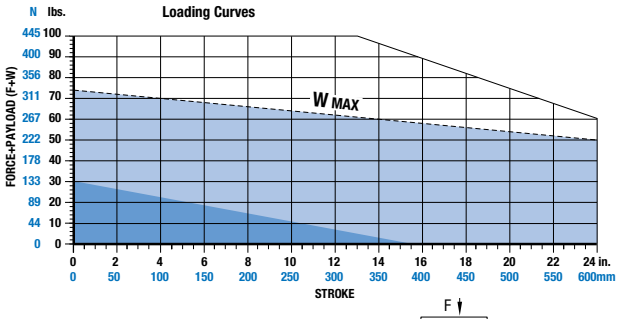
Accessories: (Order Separately)

	DLB-20M	DLB-25M	QTY/SLIDE
SHOCK/STOP ACCESSORIES			
Shock Absorber (adjustable dampening)	SHOK-029	SHOK-029	1 or 2
Adjustable Hard Stop	DLT-1023	DLT-1023	1 or 2
INDUCTIVE SENSOR ACCESSORIES†			
Inductive Sensor PNP Qk. Disconnect	OISP-011	OISP-011	1 or 2
Inductive Sensor NPN Qk. Disconnect	OISN-011	OISN-011	1 or 2
Quick. Disconnect 2M Cable Length	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length	CABL-013	CABL-013	1 or 2
Cable Extension Cord 1M Length	CABL-015	CABL-015	1 or 2
Cable Extension Cord 2M Length	CABL-016	CABL-016	1 or 2
MAGNETIC SENSOR ACCESSORIES† **			
Magneto Resistive Sensor PNP Qk. Disc.	OHSP-020	OHSP-020	1 or 2
Magneto Resistive Sensor NPN Qk. Disc.	OHSN-020	OHSN-020	1 or 2
Quick. Disconnect 2M Cable Length	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length	CABL-013	CABL-013	1 or 2
Cable Extension Cord 1M Length	CABL-015	CABL-015	1 or 2
Cable Extension Cord 2M Length	CABL-016	CABL-016	1 or 2
PNEUMATIC ACCESSORIES			
NFPA Cylinder Mounting Kit (**-U** only)	ODLB-001	ODLB-001	1
1/8 NPT Telescopic Airlines (up to 6")	OTAL-039	OTAL-039	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 12")	OTAL-040	OTAL-040	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 18")	OTAL-041	OTAL-041	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 24")	OTAL-042	OTAL-042	1, 2, 3 or 4
1/4 NPT Adjustable Flow Control	VLVF-006	VLVF-006	1 or 2
G1/8 Telescopic Airlines (up to 160mm)	OTAL-045	OTAL-045	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 300mm)	OTAL-046	OTAL-046	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 450mm)	OTAL-047	OTAL-047	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 600mm)	OTAL-048	OTAL-048	1, 2, 3 or 4
G1/8 Adjustable Flow Control	VLVF-005	VLVF-005	1 or 2
G1/8 Male to 1/8 NPT Adapter	PLFT-025	PLFT-025	1 or 2

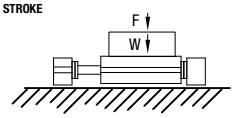
†Sensor and cable sold separately **Piston magnet standard

BASE SLIDE DLB -20M, 25M -N, R, U
REPAIRABLE (NFPA/VDMA) CYLINDER W/ ADJ. AIR CUSHIONS

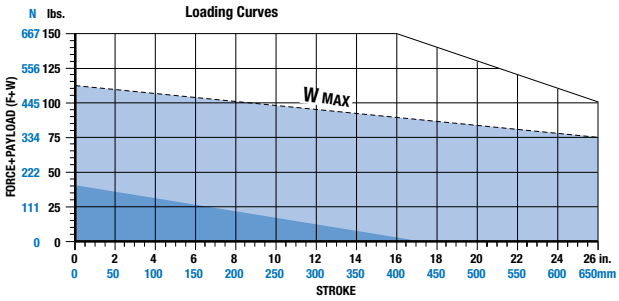
DLB -20M -N, R, U



F=Externally applied force (lbs. or N)
W=Weight of payload (lbs. or N)
F+W=Total force (lbs. or N)



DLB -25M -N, R, U



Shock Absorbers and Flow Controls are recommended for nearly all applications

(**W**) in this range use **Single Shock** in both directions

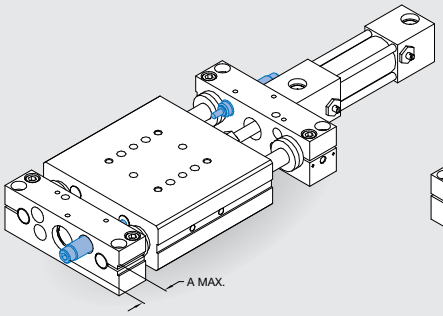
(**W**) in this range use **Bumpers or Cushioned Cylinder**

Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional accelera tion effect of gravity.

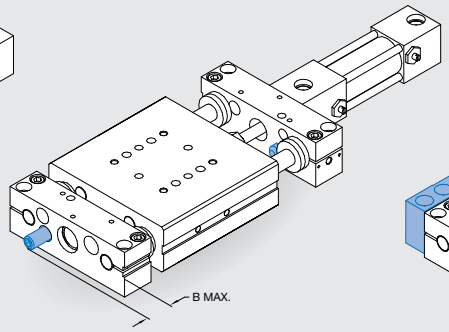
Specifications	DLB-20	DLB-20M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	117 lbs.	443 N
Weight (Basic Unit **-N, -R**)	12.9 lbs.	5.9 kg
Additional Weight per Stroke **-N, -R**	0.53 lbs./in.	9.5 g/mm
Cylinder Bore Diameter **-N**	1-1/2"	32 mm
Cylinder Bore Diameter **-R**	32 mm	32 mm
Shaft Diameter	0.787"	20 mm
Maximum Moment Load	600 in.-lbs.	67.8 N-m
Min. Air Pressure to Release Cylinder Lock **-R**	60 psi	4 bar
Holding Force of Locking Mechanism **-R**	123 psi	550 N

Specifications	DLB-25	DLB-25M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	117 lbs.	443 N
Weight (Basic Unit **-N, -R**)	18.0 lbs.	8.3 kg
Additional Weight per Stroke **-N, -R**	0.68 lbs./in.	12.1 g/mm
Cylinder Bore Diameter **-N**	1-1/2"	32 mm
Cylinder Bore Diameter **-R**	32 mm	32 mm
Shaft Diameter	0.984"	25 mm
Maximum Moment Load	1200 in.-lbs.	135 N-m
Min. Air Pressure to Release Cylinder Lock **-R**	60 psi	4 bar
Holding Force of Locking Mechanism **-R**	123 psi	550 N

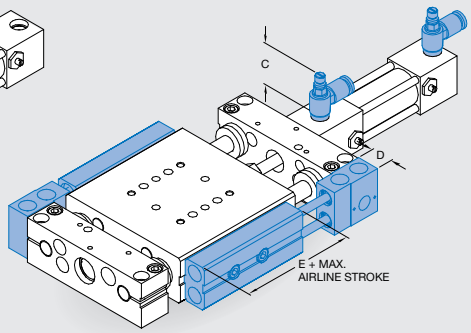
Accessory Mounting Technical Data



Shock Absorbers
- Full stroking piston rod
- Built-in hard stop
- Position adjustable
- Adjustable dampening

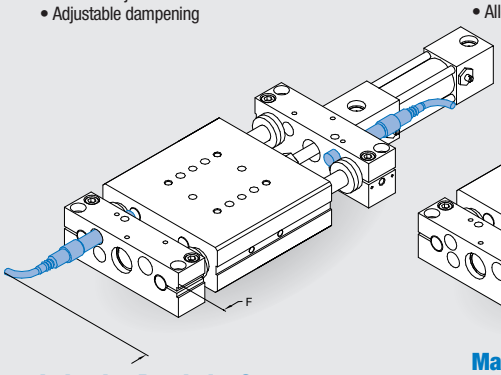


Adjustable Hard Stops
- For precision (+/-.001") hard stop end point positioning
- Allows for stop adjustment independent of shock absorber hard stop
- Allen wrench adjustable



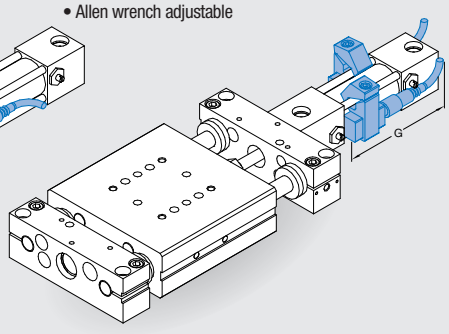
Telescoping Airlines
- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- Modules can be mounted on either side of slide
- 1/8 NPT or G1/8 pipe threads
- (2) user air ports per module

Flow Controls for Cylinders
- Thumb screw adjust with locking nut for adjusting cylinder speed
- 1/4 NPT or G1/8 pipe threads



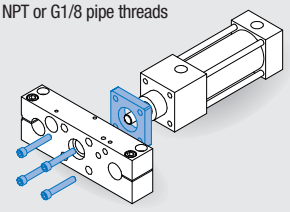
Inductive Proximity Sensors
- 8mm diameter
- Threaded quick disconnect with built-in LED output
- PNP and NPN available

Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length
- Quick disconnect cable extensions cords available in 1 or 2 meter lengths



Magneto Resistive Sensors
- For all externally mounted cylinders
- Quick Disconnect with built in LED output
- Clamp-on mounting kit included
- PNP and NPN available

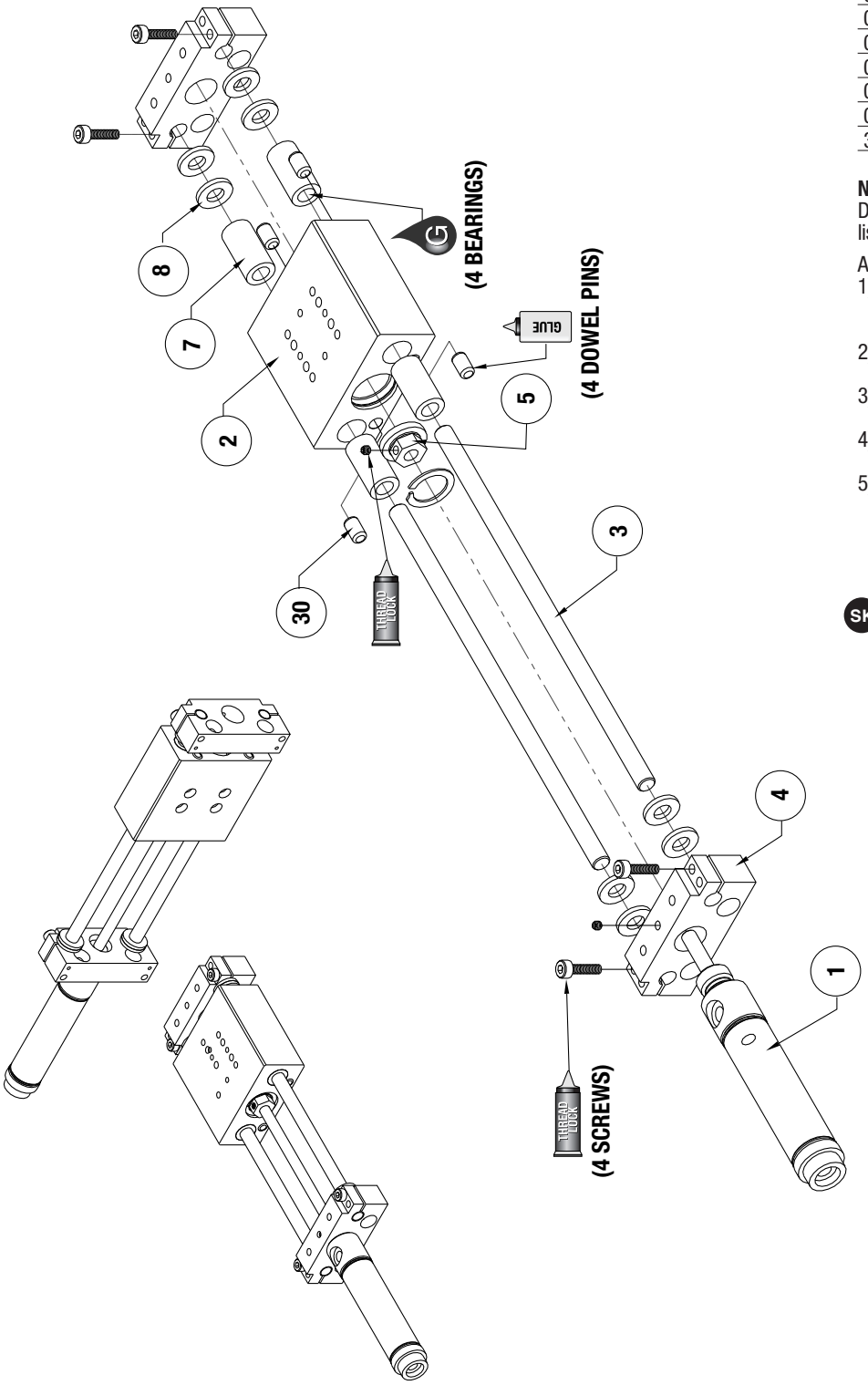
Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length
- Quick disconnect cable extensions cords available in 1 or 2 meter lengths



NFPA Cylinder Mounting Kit
- Used to mount standard face mounted NFPA cylinders to non-powered units (**-U**) Refer to accessories mounting section.

	A	B	C	D	E	F	G
DLB-20	2.03"	.10	1.40	.577	3.60	2.12	3.00
DLB-25	1.82"	.10	1.40	.577	3.60	1.90	3.00
DLB-20M	51.6mm	2.5	31.8	14.7	91.4	53.8	76.2
DLB-25M	46.2mm	2.5	31.8	14.7	91.4	48.3	76.2

DLB-T, A, N, R, U Series Exploded View



Item	Qty	Name
01	1	Cylinder
02	1	Body, Internally Powered
03	2	Guide Shaft
04	2	End Block
05	1	Coupling,Externally Powered
07	4	Bushing
08	8	Shock Pad,Urethane
30	4	Dowel Pin

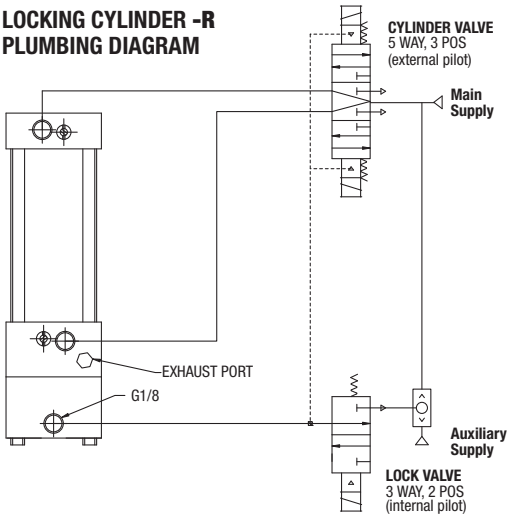
NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedure
1) Press bearings into body, insert shafts, and slide bumpers over each shaft end.
2) Install external coupler to body with retainer ring.
3) Mount end blocks onto shaft ends and tighten.
4) Attach cylinder through end block and external coupler.
5) Lock cylinder in place by tightening set screws in the external coupler and end block.

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection

LOCKING CYLINDER -R PLUMBING DIAGRAM



1) Lock valve must be maintained energized during cylinder motion, otherwise lock is engaged and cylinder valve shifts to mid position.

2) Cylinder valve must be maintained energized during extend or retract. Also, keep energized at end of stroke until change of direction is desired.

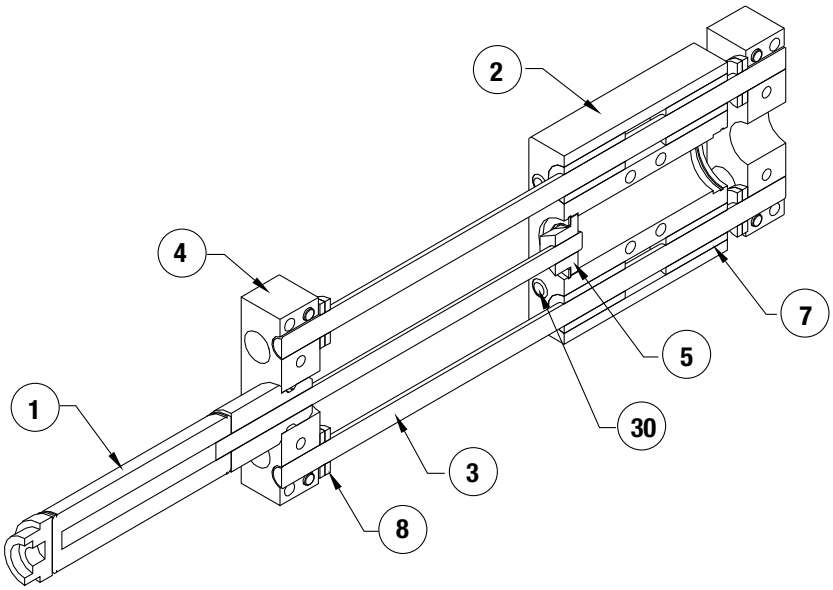
3) Mid-position of 5/3 cylinder valve may be pressurized outlets if the combinaton of pressure load on the cylinder and inertia effects of the attached load do not exceed the holding force rating of the locking device, including allowance for wear.

4) DO NOT use cylinder lines for any logic functions - pressure levels vary too much.

Item	Qty	Name
01	1	Cylinder
02	1	Body, Internally Powered
03	2	Guide Shaft
04	2	End Block
05	1	Coupling,Externally Powered
07	4	Bushing
08	8	Shock Pad,Urethane
30	4	Dowel Pin

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

NOTE: For accessory mounting, see product data sheets.



Internally Powered Block Thrusters

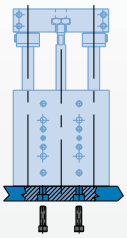
Compact design:
This design is used for short strokes in limited space applications. Internal piston design reduces overall length.

Lift table:
The block thruster can be used as a power lift table by attaching an optional mounting flange.

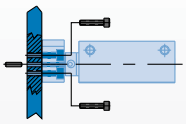
DIRECTCONNECT mounting patterns:
These slides have DIRECTCONNECT mounting patterns that connect to other slides without the need for adapter plates.

Mounting Information:

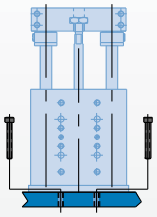
Mounts and operates in any orientation



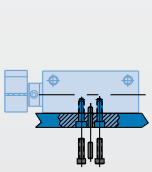
Body can be back mounted using DIRECTCONNECT mounting from the back or front of the thruster.

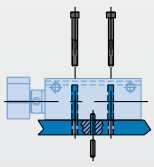


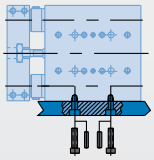
Payload attaches to tooling plate with screws and locates using slip fit dowel pin holes.



Body can end mount on end using optional mounting flange.







Body mounts with screws and locate with slip fit dowel pin holes on side or bottom using DIRECTCONNECT mounting patterns.

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range*	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary****
Air Humidity	**Low Moisture Content (dry)**

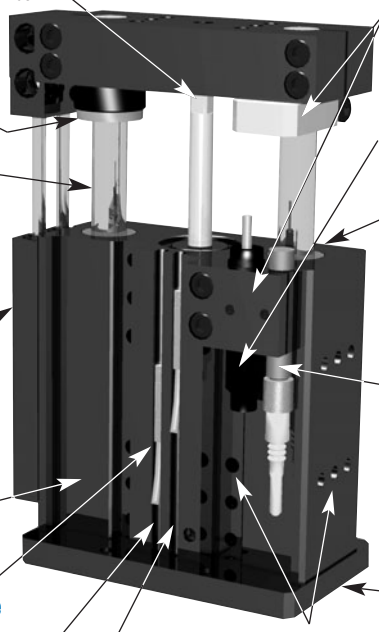
Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~300° F**	**-30°~150° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles**†
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

Application Restrictions
Flow controls, shock absorbers and urethane bumpers recommended for nearly all applications.
Use composite bushing in dirty or gritty environments.
Never use silicone based lubricants with composite bushings.

*Higher pressure possible. Consult factory with application details.
**Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features



Misalignment Coupling
Reduces cylinder wear and increases useful life of cylinder

Urethane Bumpers & Clamp Collars

Precision Ground Shafting
Case hardened to RC60-65. Corrosion resistant optional

Modular Telescoping Airlines
Eliminates flexing air lines. Patented self aligning air tube design extends useful seal life. (2) user air ports per module

Aircraft Quality Aluminum

Magneto Resistive Sensors
Slot mounted sensor with threaded quick disconnect

Sensors Grooves
For mounting Magneto Resistive Sensors

Sensor Magnet
Standard in piston

Universal Mounting Kit
Contains Mounting Bracket, Hardened Steel Target, and hardware. Allows the mounting of Shocks and adjustable Hard Stops. Dual stop & shock capable

Shock Absorbers
with built-in hard stop

Bearing Options
Preloaded linear ball bushings or composite bushings

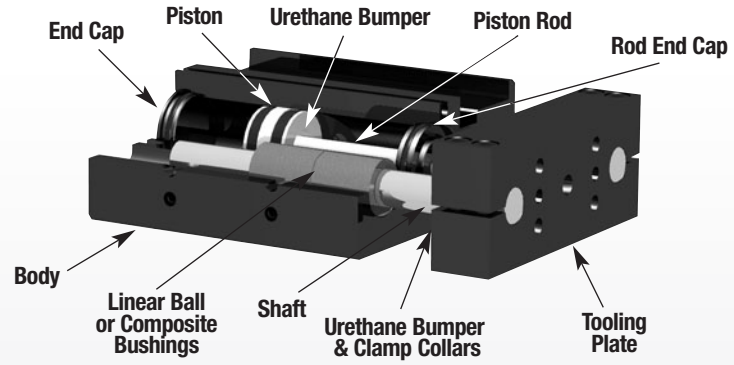
Inductive Proximity Sensors
8mm diameter, threaded body with quick disconnect

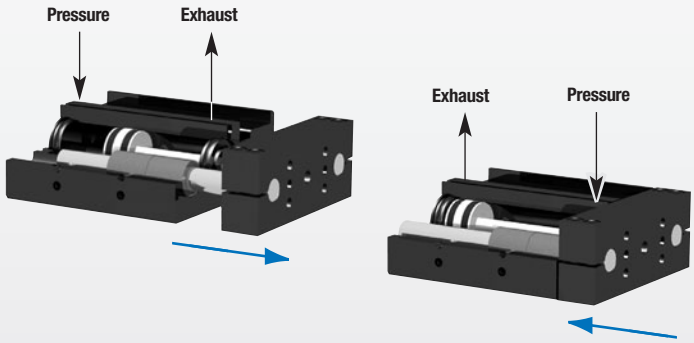
Seal Option
Viton® or self-lubricating Buna-N dynamic seals

Base Flange Kit
Converts thruster into a flange mounted lift table

DIRECTCONNECT Mounting Patterns
Main bodies have tapped and counterbored through holes including slip fit dowel holes on DIRECTCONNECT mounting surface

Operating Principle



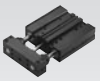


- A double acting internal cylinder located within the body drives a piston rod that connects to the tooling plate with a misalignment coupling.
- The tooling is attached to two hardened steel shafts which are supported by and move in four linear bushings located in the body.

Designed and manufactured in the USA

Style-B Block Thruster

Size -06M



See Page 4.34

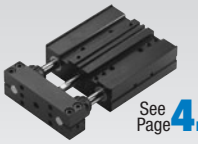
Style-B Block Thruster

Size -08M

See Page 4.34

Style-B Block Thruster

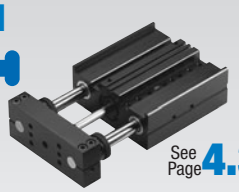
Size -10M



See Page 4.36

Style-B Block Thruster

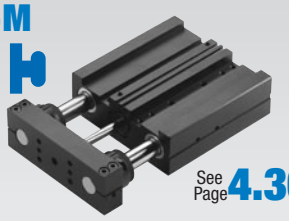
Size -12M



See Page 4.36

Style-B Block Thruster

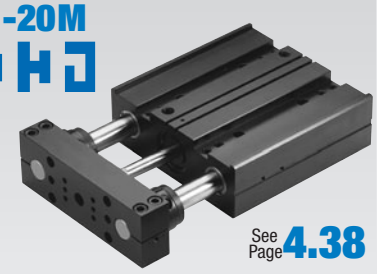
Size -16M



See Page 4.36

Style-B Block Thruster

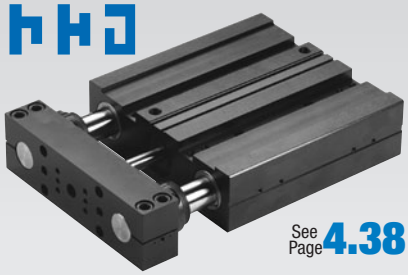
Size -20M



See Page 4.38

Style-B Block Thruster

Size -25M



See Page 4.38

BLOCK THRUSTER DLT -06M, 08M -B
BUILT-IN REPAIRABLE CYLINDER

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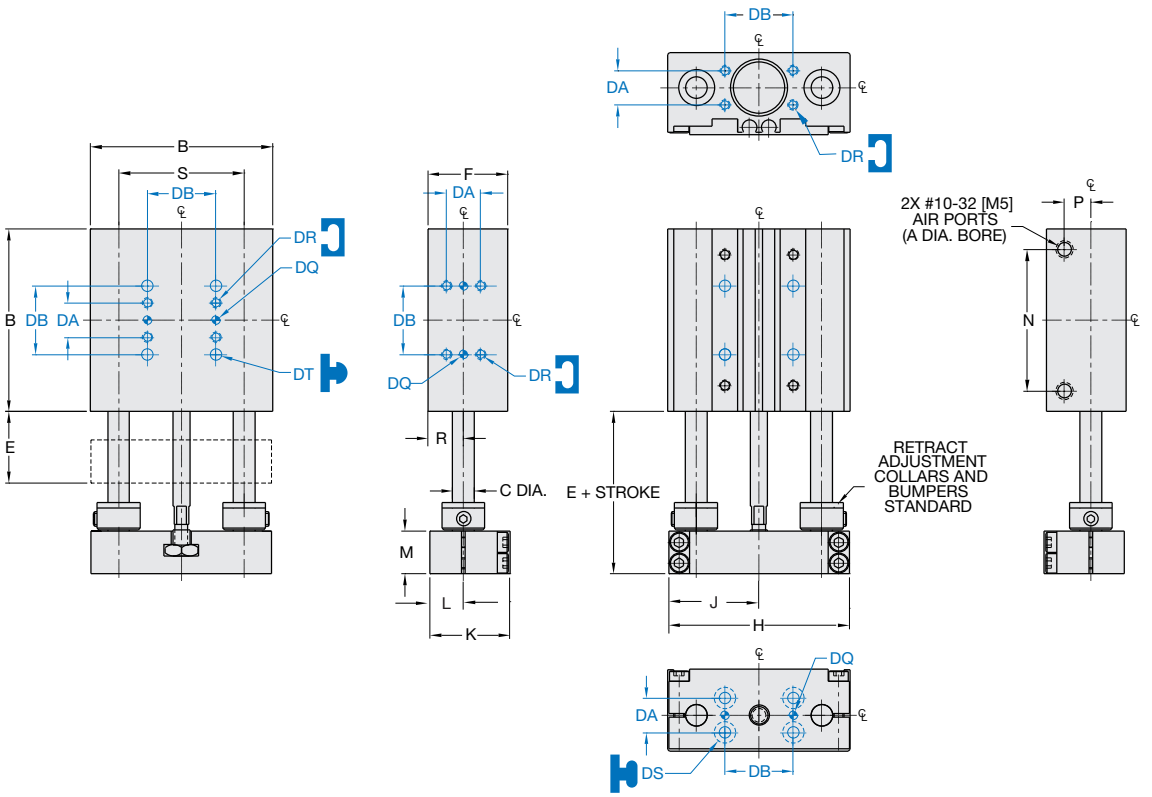


UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

BASIC UNIT DIMENSIONS

MODEL #	A (BORE DIA.)	B (BODY SIZE)	C (SHAFT DIA.)	E	F	H	J	K	L	M	N	P	R	S
DLT-06	0.563	2.00	0.236	0.783	0.88	1.980	.990	0.875	.365	0.470	1.55	0.29	.390	1.375
DLT-08	0.563	2.50	0.315	0.783	0.88	2.470	1.235	0.875	.365	0.470	2.05	0.29	.390	1.750
DLT-06M	14	50.8	6.0	19.9	22.4	50.3	25.1	22.2	9.3	11.9	39.4	7.4	9.9	34.93
DLT-08M	14	63.5	8.0	19.9	22.4	62.7	31.0	22.2	9.3	11.9	52.1	7.4	9.9	44.45

DIRECT CONNECT DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DA	.375	9.5
DB	.750	19.1
DQ	.0940 x .078 DP	3H7 x 2 DP
DR	#4-40 x .25 DP	M3 x 6 DP
DS	Clearance for #4	Clearance for M3
DT	Clearance for #4	Clearance for M3

How to Order: Basic Unit

BASIC MODEL | METRIC | STYLE | STROKE | SHAFTING

DLT - [ ] M - B - C - [ ] - V - S

SIZE | BEARING | VITON® SEALS

SIZE **06, 08**

METRIC **M**

STYLE **B** Block thruster with built-in repairable cylinder

BEARING **C** Composite bushings

STROKE (inches)
DLT-06 **.25, .5, 1, 1.25**
DLT-08 **.25, .5, 1, 1.5, 1.75**

STROKE (mm)
DLT-06M **6, 12, 25, 30**
DLT-08M **6, 12, 25, 30, 40, 44**

Custom strokes available. Please consult factory.

VITON® **V** Viton® seals

SHAFTING **S** Corrosion resistant shafting

SAMPLE ORDER: DLT-06-B-C-1.5-V
Ex: Thruster, Size 06, Block Style, Composite Bushings, 1.5 Inch Stroke, Viton® Seals

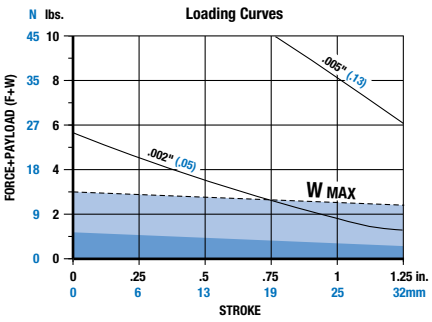
Accessories: (Order Separately)

	DLT-06M	DLT-08M	QTY/THRUSTER
SHOCK/STOP ACCESSORIES			
Universal Mounting Kit (Shock or Stop)	OSAK-069	OSAK-070	1 or 2
Shock Absorber*	SHOK-030	SHOK-030	1 or 2
Adjustable Hard Stop*	DLT-623	DLT-623	1 or 2
INDUCTIVE SENSOR ACCESSORIES †			
Inductive Sensor Mounting Kit	OSMK-076	OSMK-077	1
Inductive Sensor PNP Qk. Disconnect †	OISP-014	OISP-014	1
Inductive Sensor NPN Qk. Disconnect †	OISN-014	OISN-014	1
Quick Disconnect 2 M Cable Length	CABL-010	CABL-010	1
Quick Disconnect 5 M Cable Length	CABL-013	CABL-013	1
MAGNETIC SENSOR ACCESSORIES ** †			
Magneto Resistive Sensor PNP Qk. Disc.†	OHSP-017	OHSP-017	1 or 2
Magneto Resistive Sensor NPN Qk. Disc.†	OHSN-017	OHSN-017	1 or 2
Quick Disconnect 2 M Cable Length	CABL-010	CABL-010	1 or 2
Quick Disconnect 5 M Cable Length	CABL-013	CABL-013	1 or 2
PNEUMATIC ACCESSORIES			
#10-32 Adjustable Flow Control	VLVF-007	VLVF-007	1 or 2
M5 Adjustable Flow Control	VLVF-008	VLVF-008	1 or 2
Cylinder Seal Repair Kit	SLKT-108	SLKT-108	1
Viton® Seal Repair Kit	SLKT-108V	SLKT-108V	1
MOUNTING ACCESSORIES			
Base Flange Kit (Imperial & Metric)	ODLT-015	ODLT-016	1

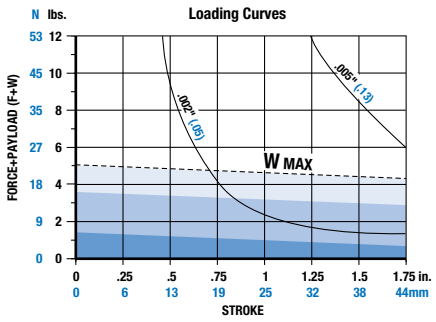
*Requires Universal Mounting Kit †Sensor and cable sold separately **Piston magnet standard

DIRECT CONNECT™

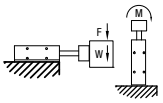
DLT -06M -B



DLT -08M -B



F=Externally applied force (lbs. or N)
W=Weight of payload (lbs. or N)
F+W=Total deflection force (lbs. or N)
M=Maximum moment (in.-lb. or N-m)



Shock Absorbers and Flow Controls are recommended for nearly all applications

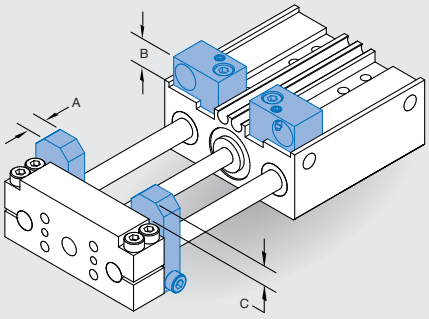
Use **Double Shocks** in both directions | Use **Single Shock** in both directions | Use **Bumpers or Cushioned Cylinder**

Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional accelera tion effect of gravity.

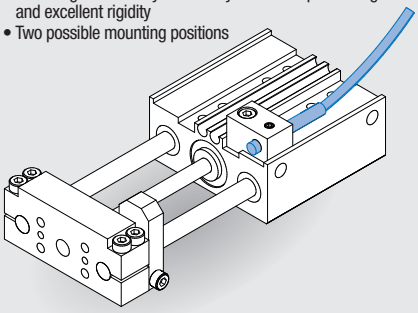
Specifications	DLT-06	DLT-06M
Maximum Air Pressure	100 psi	7 bar
Thrust Force @ 80psi/5.5bar	20 lbs.	89 N
Weight (Basic Unit)	0.34 lbs.	0.15 kg
Cylinder Bore Diameter	0.563"	14.3 mm
Shaft Diameter	0.236"	6 mm
Max (**M**) Vertical Motion	5 in.-lbs.	0.6 N-m

Specifications	DLT-08	DLT-08M
Maximum Air Pressure	100 psi	7 bar
Thrust Force @ 80psi/5.5bar	20 lbs.	89 N
Weight (Basic Unit)	0.65 lbs.	0.30 kg
Cylinder Bore Diameter	0.563"	14.3 mm
Shaft Diameter	0.315"	8 mm
Max (**M**) Vertical Motion	10 in.-lbs.	1.1 N-m

Accessory Mounting Technical Data

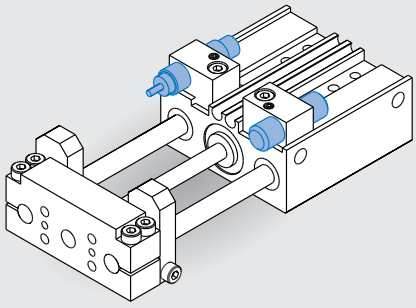


Universal Mounting Kit
- Kit mounts (1) Shock Absorber or (1) Adjustable Hard Stop
- Kit includes (1) Mounting Bracket, (1) Hardened Tool Steel Target and Hardware
- Target allows for unlimited retract stroke adjustment (no extend position adjustment). Fine adjustment is achieved using Adjustable Hard Stop or Shock Absorber
- Mounting Bracket keys into body for secure positioning and excellent rigidity
- Two possible mounting positions



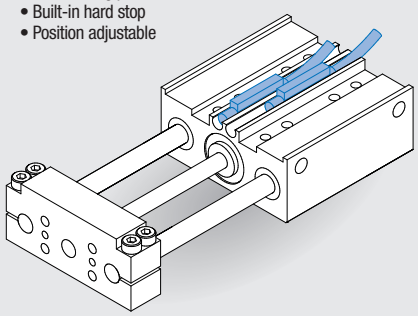
Inductive Proximity Sensors
- 4 mm diameter
- Threaded quick disconnect with built-in LED output
- PNP and NPN available

Quick Disconnect Cables
- Quick disconnect 2M cable Length
- Quick disconnect 5M cable Length



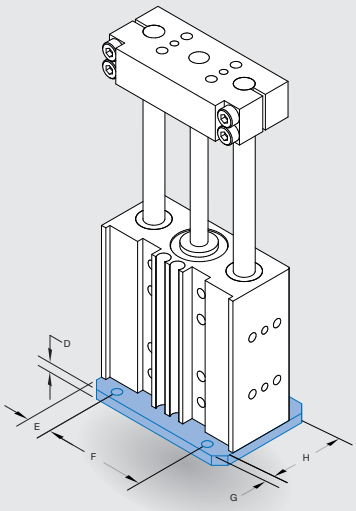
Adjustable Hard Stops
- For precision (+/-.001") end point positioning of retract position
- Allows for end stop position adjustment independent of shock absorber hard stop
- Allen wrench adjustable

Shock Absorbers
- Full stroking piston rod
- Built-in hard stop
- Position adjustable



Magneto Resistive Sensors
- No mounting kit required (slot mounted)
- Built-in LED output
- PNP and NPN available
- Hard wired 2 meter cable length
- Low profile

Quick Disconnect Cables
- Quick disconnect 2M cable Length
- Quick disconnect 5M cable Length



Base Flange Kit
- Convert Thruster unit into a Flange mounted Lift Table
- Provides a DIRECT CONNECT mounting pattern on the bottom surface

Flow Controls for Cylinders
- Thumb screw adjust with locking nut for adjusting cylinder speed
- #10-32 or M5 pipe threads

	A	B	C	D	E	F	G	H
DLT-06	.250"	.310	.270	.125	.313	1.376	.125	1.125
DLT-08	.250"	.310	.270	.125	.563	1.376	.125	1.125
DLT-06M	6.4 mm	7.9	6.7	3.2	8.0	35	3.2	28.6
DLT-08M	6.4 mm	7.9	6.7	3.2	14.3	35	3.2	28.6

BLOCK THRUSTER DLT -10M, 12M, 16M -B
BUILT-IN REPAIRABLE CYLINDER

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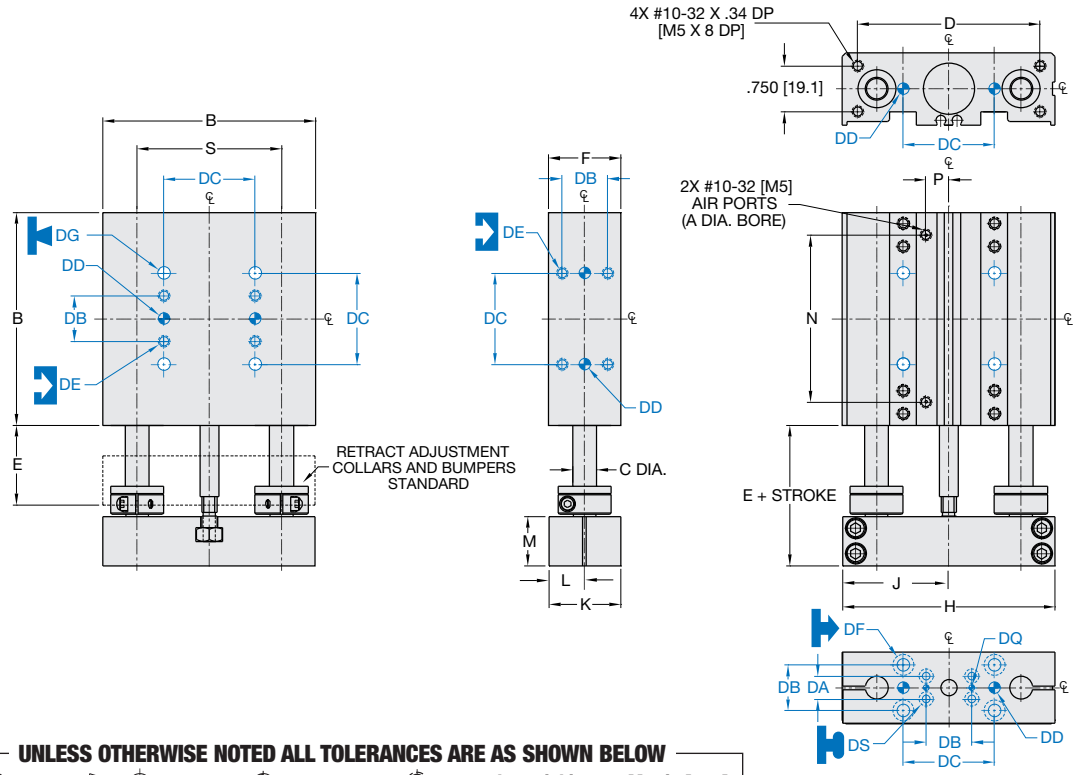


UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

BASIC UNIT DIMENSIONS

BORE DIA. / BODY SIZE / SHAFT DIA.

MODEL #	A	B	C	D	E	F	H	J	K	L	M	N	P	S
DLT-10	3/4	3.50	.375	3.000	1.313	1.19	3.490	1.740	1.178	.584	.813	2.75	0.37	2.375
DLT-12	1	4.00	.472	3.625	1.313	1.63	3.985	1.985	1.615	.802	.813	3.28	0.37	2.750
DLT-16	1	4.75	.630	4.375	1.375	1.63	4.735	2.360	1.615	.802	.813	4.03	0.37	3.250
DLT-10M	19	88.9	9.5	76.2	33.4	30.2	88.6	44.2	29.9	14.8	20.7	69.7	9.4	60.33
DLT-12M	25	101.6	12.0	92.1	33.4	41.4	101.2	50.4	41.0	20.4	20.7	83.3	9.4	69.85
DLT-16M	25	120.7	16.0	111.1	34.9	41.4	120.3	59.9	41.0	20.4	20.7	102.4	9.4	82.55

DIRECTCONNECT DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DA	.375	9.5
DB	.750	19.1
DC	1.500	38.1
DD	.1880 x .25 DP	5mm H7 x 6 DP
DE	#10-32 x .34 DP	M5 x 8.5 DP
DF	Clearance for #10	Clearance for M5
DG	Clearance for #10	Clearance for M5
DQ	.0940 x .078 DP	3H7 x 2 DP
DS	Clr & C'bore for #4	Clr & C'bore for M3

How to Order: Basic Unit

BASIC MODEL | METRIC | STYLE | STROKE | SHAFTING

DLT - [ ] M - B - [ ] - [ ] - V - S

SIZE | BEARING | VITON® SEALS

SIZE **10, 12, 16**

METRIC **M**

STYLE **B** Block thruster with built-in repairable cylinder

BEARING **B** Linear ball bearings
C Composite bushings

STROKE (inches)
DLT-10 **.5-2** @ .5" increments
DLT-12 **.5-2** @ .5" increments
DLT-16 **.5-3** @ .5" increments

Custom strokes available. Please consult factory.

STROKE (mm)
DLT-10M **12, 25, 40, 50**
DLT-12M **12, 25, 40, 50**
DLT-16M **12, 25, 40, 50, 65, 75**

VITON® **V** Viton® seals

SHAFTING **S** Corrosion resistant shafting

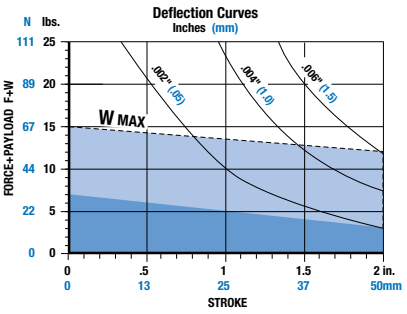
SAMPLE ORDER: DLT-10-B-C-1.5-V
Ex: Thruster, Size 10, Block Style, Composite Bushings, 1.5 inch Stroke, Viton® Seals

Accessories: (Order Separately)

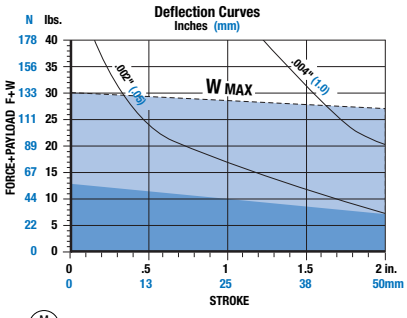
	DLT-10M	DLT-12M	DLT-16M	QTY/THRUSTER
SHOCK/STOP ACCESSORIES				
Universal Mounting Kit (Shock, Stop or Sensor)	OSAK-055	OSAK-057	OSAK-059	1 or 2
Shock Absorber*	SHOK-028	SHOK-010	SHOK-010	1 or 2
Adjustable Hard Stop*	DLT-1023	DLT-1023	DLT-1023	1 or 2
INDUCTIVE SENSOR ACCESSORIES†				
Inductive Sensor PNP Qk. Disconnect*	OISP-011	OISP-011	OISP-011	1
Inductive Sensor NPN Qk. Disconnect*	OISN-011	OISN-011	OISN-011	1
Quick Disconnect 2 M Cable Length	CABL-010	CABL-010	CABL-010	1
Quick Disconnect 5 M Cable Length	CABL-013	CABL-013	CABL-013	1
MAGNETIC SENSOR ACCESSORIES††				
Magneto Resistive Sensor PNP Qk. Disc.†	OHSP-017	OHSP-017	OHSP-017	1 or 2
Magneto Resistive Sensor NPN Qk. Disc.†	OHSN-017	OHSN-017	OHSN-017	1 or 2
Quick Disconnect 2 M Cable Length	CABL-010	CABL-010	CABL-010	1
Quick Disconnect 5 M Cable Length	CABL-013	CABL-013	CABL-013	1
PNEUMATIC ACCESSORIES				
1/8 NPT Telescopic Airlines (up to 2")	OTAL-037	OTAL-037	OTAL-037	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 3")	OTAL-038	OTAL-038	OTAL-038	1, 2, 3 or 4
#10-32 Adjustable Flow Control	VLVF-007	VLVF-007	VLVF-007	1 or 2
G1/8 Telescopic Airlines (up to 50mm)	OTAL-043	OTAL-043	OTAL-043	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 80mm)	OTAL-044	OTAL-044	OTAL-044	1, 2, 3 or 4
M5 Adjustable Flow Control	VLVF-008	VLVF-008	VLVF-008	1 or 2
Cylinder Seal Repair Kit	SLKT-100	SLKT-102	SLKT-102	1
Viton® Seal Repair Kit	SLKT-100V	SLKT-102V	SLKT-102V	1
MOUNTING ACCESSORIES				
Base Flange Kit (Imperial)	ODLT-005	ODLT-007	ODLT-009	1
Base Flange Kit (Metric)	ODLT-006	ODLT-008	ODLT-010	1

*Requires Universal Mounting Kit †Sensor and cable sold separately **Piston magnet standard

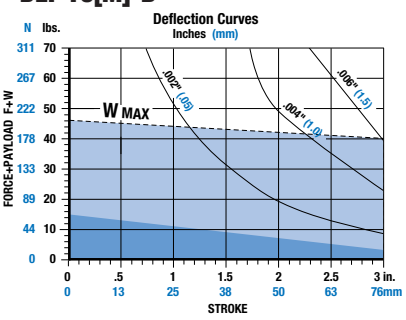
DLT-10M-B



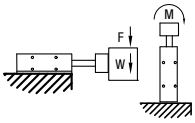
DLT-12M-B



DLT-16[M]-B



F=Externally applied force (lbs. or N)
W=Weight of payload (lbs. or N)
F+W=Total deflection force (lbs. or N)
M=Maximum moment (in.-lb. or N-m)



Shock Absorbers and Flow Controls are recommended for nearly all applications

(**W**) in this range use **Single Shock** in retract direction

(**W**) in this range use **Bumpers or Cushioned Cylinder**

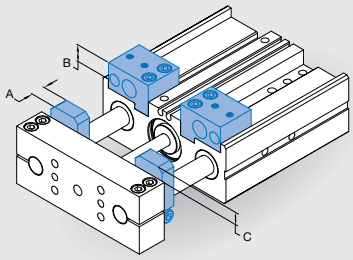
Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional accelera tion effect of gravity.

Specifications	DLT-10	DLT-10M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	35 lbs.	155 N
Weight (Basic Unit)	1.81 lbs.	0.82 kg
Cylinder Bore Diameter	3/4"	19mm
Shaft Diameter	0.375"	9.5mm
Max (**M**) Vertical Motion	25 in-lbs.	2.8N-m

Specifications	DLT-12	DLT-12M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	62 lbs.	275 N
Weight (Basic Unit)	2.88 lbs.	1.31 kg
Cylinder Bore Diameter	1"	25mm
Shaft Diameter	0.472"	12mm
Max (**M**) Vertical Motion	50 in-lbs.	5.6N-m

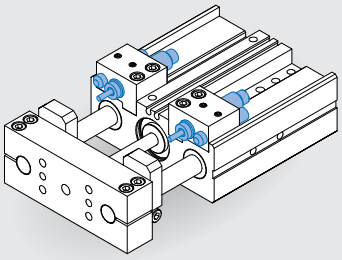
Specifications	DLT-16	DLT-16M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	62 lbs.	275 N
Weight (Basic Unit)	4.38 lbs.	1.99 kg
Cylinder Bore Diameter	1"	25mm
Shaft Diameter	0.630"	16mm
Max (**M**) Vertical Motion	100 in-lbs.	11.3N-m

Accessory Mounting Technical Data



Universal Mounting Kit

- Kit mounts (1) Shock Absorber and (1) Inductive Proximity Sensor or (1) Shock and (1) Adjustable Hard Stop
- Kit includes (1) Mounting Bracket, (1) Hardened Tool Steel Target and Hardware
- Target allows for unlimited retract stroke adjustment (no extend position adjustment). Fine adjustment is achieved using Adjustable Hard Stop or Shock Absorber
- Mounting Bracket keys into body for secure positioning and excellent rigidity
- Two possible mounting positions

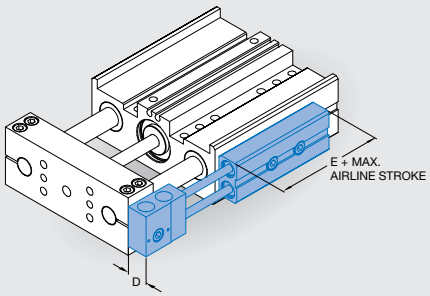


Adjustable Hard Stops

- For precision (+/-.001") end point positioning of retract position
- Allows for end stop position adjustment independent of shock absorber hard stop
- Allen wrench adjustable

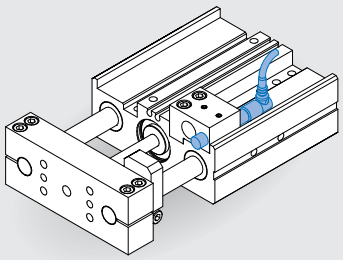
Shock Absorbers

- Full stroking piston rod
- Built-in hard stop
- Allen wrench adjustable



Telescoping Airlines

- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- 1/8 NPT or G1/8 pipe threads
- (2) user air ports per module

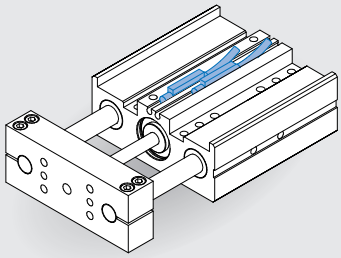


Inductive Proximity Sensors

- 8mm diameter
- Threaded quick disconnect with built-in LED output
- PNP and NPN available

Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

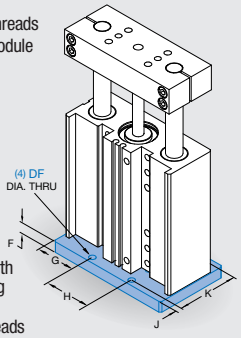


Magneto Resistive Sensors

- No mounting kit required (slot mounted)
- Threaded quick disconnect with built-in LED output
- PNP and NPN available
- Low profile

Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length



Flow Controls for Cylinders

- Thumb screw adjust with locking nut for adjusting cylinder speed
- #10-32 or M5 pipe threads

Base Flange Kit

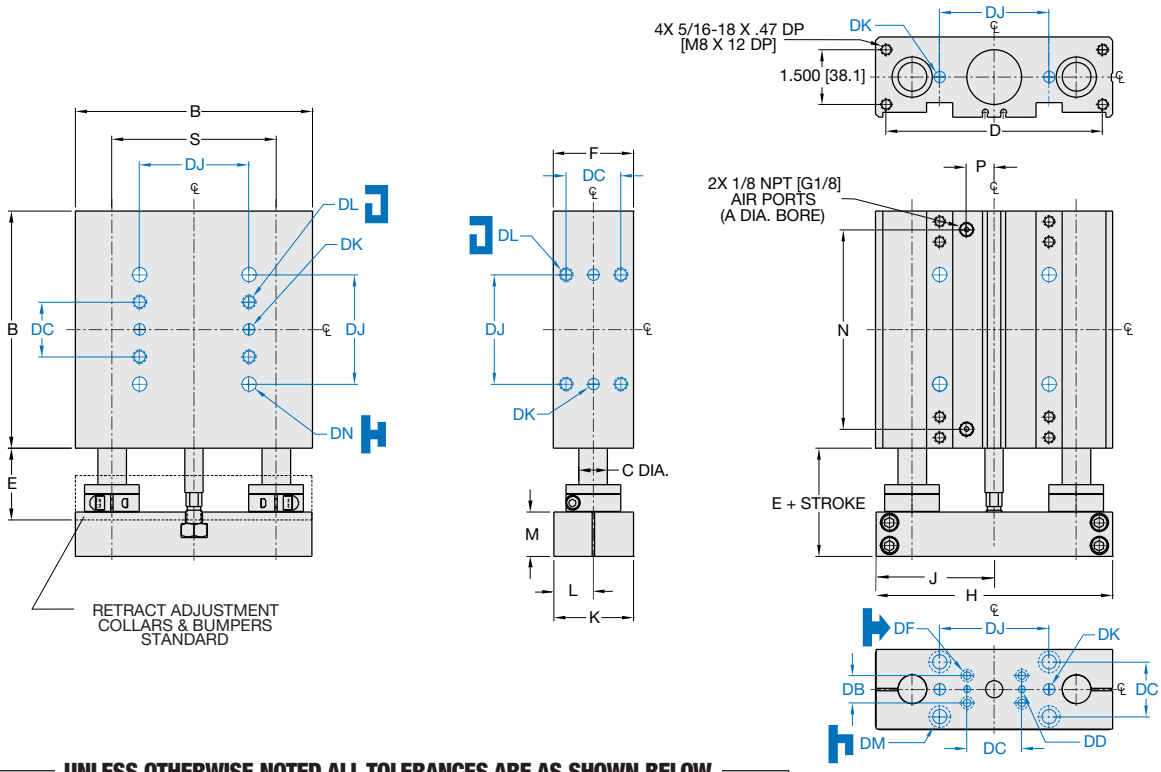
- Convert Thruster unit into a Flange mounted Lift Table
- Provides a DIRECTCONNECT mounting pattern on the bottom surface

	A	B	C	D	E	F	G	H	J	K
DLT-10	.375"	.480	.320	.577	2.0	.355	1.00	1.500	.188	1.500
DLT-12	.357"	.450	.230	.577	2.0	.355	1.281	1.500	.188	2.000
DLT-16	.437"	.450	.340	.577	2.0	.355	1.656	1.500	.188	2.000
DLT-10M	9.5mm	12.2	8.1	14.7	50.8	9.0	25.4	38.1	4.8	38.1
DLT-12M	9.5mm	11.4	5.8	14.7	50.8	9.0	32.5	38.1	4.8	50.8
DLT-16M	11.1mm	11.4	8.6	14.7	50.8	9.0	42.1	38.1	4.8	50.8

DIRECTCONNECT™

BLOCK THRUSTER DLT -20M, 25M -B
BUILT-IN REPAIRABLE CYLINDER

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

BASIC UNIT DIMENSIONS

MODEL #	A (BORE DIA.)	B (BODY SIZE)	C (SHAFT DIA.)	D	E	F	H	J	K	L	M	N	P	S
DLT-20	1 1/2	6.50	.787	5.938	1.960	2.20	6.480	3.230	2.180	1.080	1.210	5.47	0.77	4.500
DLT-25	1 1/2	7.50	.984	6.938	2.170	2.20	7.480	3.730	2.180	1.080	1.420	6.47	0.77	5.250
DLT-20M	38	165.1	20	150.8	49.8	55.9	164.6	82.0	55.4	27.4	30.7	138.9	19.5	114.30
DLT-25M	38	190.5	25	176.2	55.1	55.9	190.0	94.7	55.4	27.4	36.1	164.3	19.5	133.35

DIRECT CONNECT DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DB	.750	19.1
DC	1.500	38.1
DD	.1880 x .25DP	5mm H7 x 6DP
DF	Clearance for #10	Clearance for M5
DJ	3.000	76.2
DK	.3130 x .37 DP	8mm H7 x 9.4 DP
DL	3/8-16 x .56 DP	M10 x 14.2 DP
DM	Clearance for 3/8	Clearance for M10
DN	Clearance for 3/8	Clearance for M10

How to Order: Basic Unit

BASIC MODEL | METRIC | STYLE | STROKE | SHAFTING

DLT - [ ] M - B - [ ] - [ ] - V - S

SIZE | BEARING | VITON® SEALS

SIZE **20, 25**

METRIC **M**

STYLE **B** Block thruster with built-in repairable cylinder

BEARING **B** Linear ball bearings
C Composite bushings

STROKE (inches)
DLT-20 **.5-4** @ .5" increments
DLT-25 **.5-5** @ .5" increments

Custom strokes available. Please consult factory.

STROKE (mm)
DLT-20M **12, 25, 40, 50, 65, 75, 85, 100**
DLT-25M **12, 25, 40, 50, 65, 75, 85, 100, 115, 125**

VITON® **V** Viton® seals

SHAFTING **S** Corrosion resistant shafting

SAMPLE ORDER: DLT-20-B-C-2.5-V
Ex: Thruster, Size 20, Block Style, Composite Bushings, 2.5 Inch Stroke, Viton® Seals

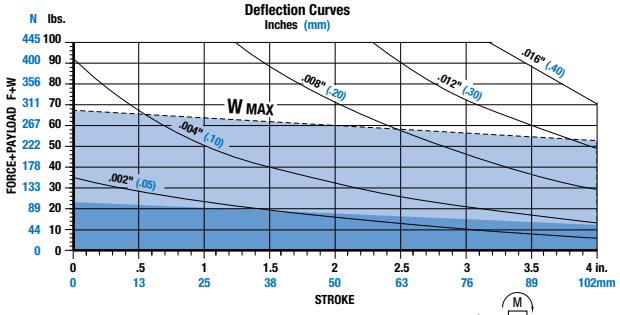
Accessories: (Order Separately)

	DLT-20M	DLT-25M	QTY/THRUSTER
SHOCK/STOP ACCESSORIES			
Universal Mounting Kit (Shock, Stop or Sensor)	OSAK-061	OSAK-063	1 or 2
Shock Absorber (adjustable dampening)*	SHOK-029	SHOK-029	1 or 2
Adjustable Hard Stop*	DLT-1023	DLT-1023	1 or 2
INDUCTIVE SENSOR ACCESSORIES†			
Inductive Sensor PNP Qk. Disconnect*	OISP-011	OISP-011	1
Inductive Sensor NPN Qk. Disconnect*	OISN-011	OISN-011	1
Quick Disconnect 2 M Cable Length	CABL-010	CABL-010	1
Quick Disconnect 5 M Cable Length	CABL-013	CABL-013	1
MAGNETIC SENSOR ACCESSORIES†**			
Magneto Resistive Sensor PNP Qk. Disc.†	OHSP-017	OHSP-017	1 or 2
Magneto Resistive Sensor NPN Qk. Disc.†	OHSN-017	OHSN-017	1 or 2
Quick Disconnect 2 M Cable Length	CABL-010	CABL-010	1
Quick Disconnect 5 M Cable Length	CABL-013	CABL-013	1
PNEUMATIC ACCESSORIES			
1/8 NPT Telescopic Airlines (up to 4")	OTAL-049	OTAL-049	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 5")	OTAL-050	OTAL-050	1, 2, 3 or 4
1/8 NPT Adjustable Flow Control	VLVF-004	VLVF-004	1 or 2
G1/8 Telescopic Airlines (up to 100mm)	OTAL-051	OTAL-051	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 125mm)	OTAL-052	OTAL-052	1, 2, 3 or 4
G1/8 Adjustable Flow Control	VLVF-005	VLVF-005	1 or 2
Cylinder Seal Repair Kit	SLKT-104	SLKT-104	1
Viton® Cylinder Seal Repair Kit	SLKT-104V	SLKT-104V	1
MOUNTING ACCESSORIES			
Base Flange Kit (Imperial)	ODLT-011	ODLT-013	1
Base Flange Kit (Metric)	ODLT-012	ODLT-014	1

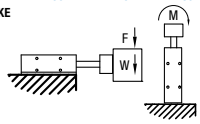
*Requires Universal Mounting Kit †Sensor and cable sold separately **Piston magnet standard

DIRECT CONNECT™

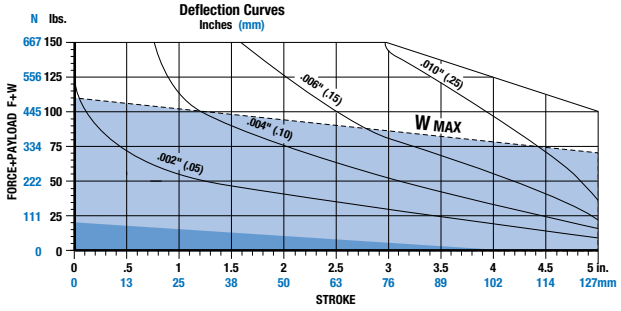
DLT-20M-B



F=Externally applied force (lbs. or N)
W=Weight of payload (lbs. or N)
F+W=Total deflection force (lbs. or N)
M=Maximum moment (in.-lb. or N-m)



DLT-25M-B



Shock Absorbers and Flow Controls are recommended for nearly all applications

(**W**) in this range use **Single Shock** in retract direction

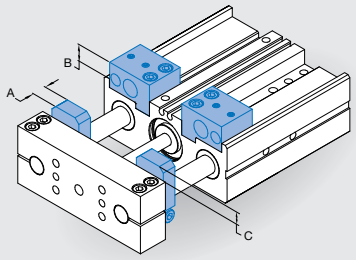
(**W**) in this range use **Bumpers or Cushioned Cylinder**

Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional accelera tion effect of gravity.

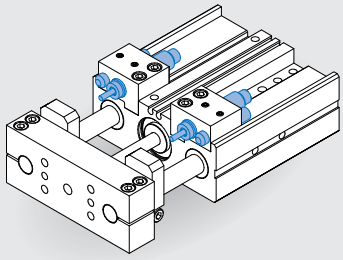
Specifications	DLT-20	DLT-20M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	140 lbs.	622 N
Weight (Basic Unit)	11.2 lbs.	5.1 kg
Cylinder Bore Diameter	1-1/2"	38mm
Shaft Diameter	0.787"	20mm
Max (**M**) Vertical Motion	250 in.-lbs.	28.2N-m

Specifications	DLT-25	DLT-25M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	140 lbs.	622 N
Weight (Basic Unit)	15.7 lbs.	7.2 kg
Cylinder Bore Diameter	1-1/2"	38mm
Shaft Diameter	0.984"	25mm
Max (**M**) Vertical Motion	500 in.-lbs.	56.4N-m

Accessory Mounting Technical Data

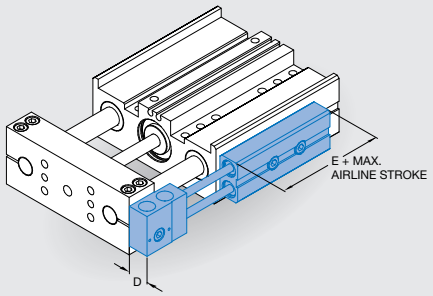


Universal Mounting Kit
- Kit mounts (1) Shock Absorber and (1) Inductive Proximity Sensor or (1) Shock and (1) Adjustable Hard Stop
- Kit includes (1) Mounting Bracket, (1) Hardened Tool Steel Target and Hardware
- Target allows for unlimited retract stroke adjustment (no extend position adjustment). Fine adjustment is achieved using Adjustable Hard Stop or Shock Absorber
- Mounting Bracket keys into body for secure positioning and excellent rigidity
- Two possible mounting positions

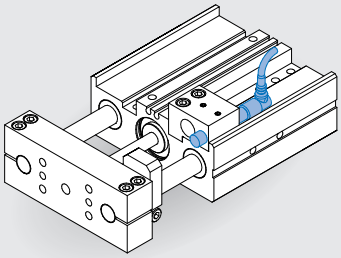


Adjustable Hard Stops
- For precision (+/-.001") end point positioning of retract position
- Allows for end stop position adjustment independent of shock absorber hard stop
- Allen wrench adjustable

Shock Absorbers
- Full stroking piston rod
- Built-in hard stop
- Position adjustable
- Adjustable dampening

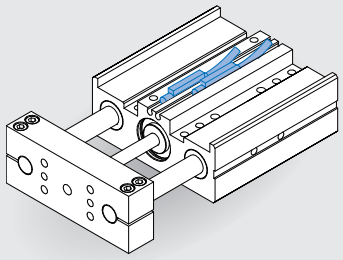


Telescoping Airlines
- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- 1/8 NPT or G1/8 pipe threads
- (2) user air ports per module



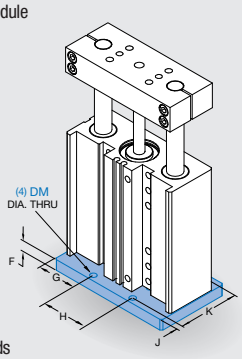
Inductive Proximity Sensors
- 8mm diameter
- Threaded quick disconnect with built-in LED output
- PNP and NPN available

Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length



Magneto Resistive Sensors
- No mounting kit required (slot mounted)
- Threaded quick disconnect with built-in LED output
- PNP and NPN available
- Low profile

Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

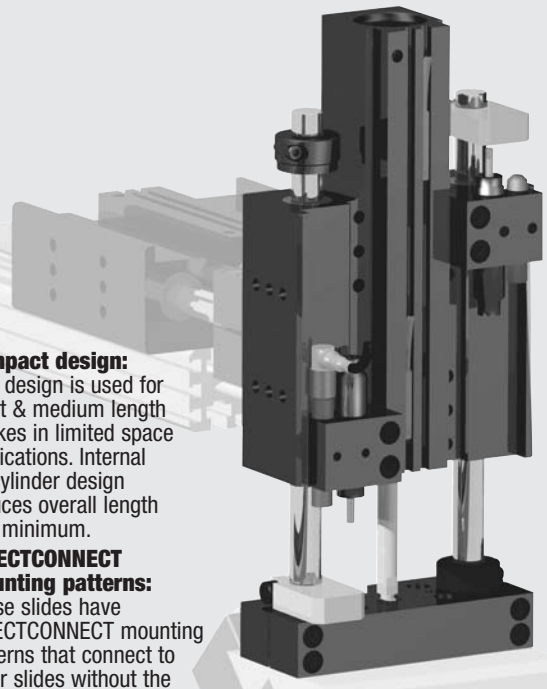


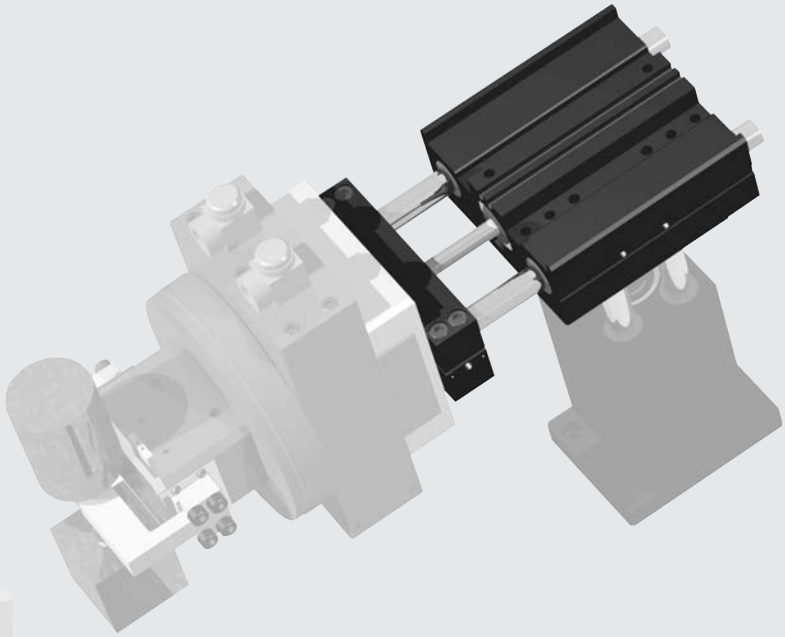
Flow Controls for Cylinders
- Thumb screw adjust with locking nut for adjusting cylinder speed
- #10-32 or M5 pipe threads

Base Flange Kit
- Convert Thruster unit into a Flange mounted Lift Table
- Provides a DIRECT CONNECT mounting pattern on the bottom surface

	A	B	C	D	E	F	G	H	J	K
DLT-20	.500"	.92	.67	.577	2.0	.480	1.750	3.000	.375	3.000
DLT-25	.500"	.92	.67	.577	2.0	.480	2.250	3.000	.375	3.000
DLT-20M	12.7mm	23.4	17.0	14.7	50.8	12.2	44.5	76.2	9.5	76.2
DLT-25M	12.7mm	23.4	17.0	14.7	50.8	12.2	57.2	76.2	9.5	76.2

Internally Powered Thruster Slide



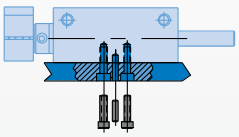


Compact design:
This design is used for short & medium length strokes in limited space applications. Internal air cylinder design reduces overall length to a minimum.

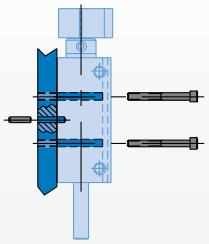
DIRECTCONNECT mounting patterns:
These slides have DIRECTCONNECT mounting patterns that connect to other slides without the need for adapter plates.

Mounting Information:

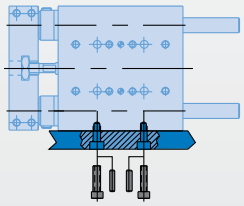
Mounts and operates in any orientation



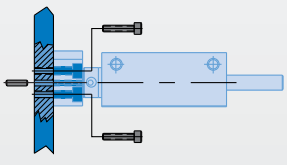
Body can be mounted from the back using the directconnect pattern of threaded mounting and dowel pin holes



Body back mounts with screws from the front using the clearance and counterbored DIRECTCONNECT pattern and located with dowel holes.



Body mounts with screws and locate with slip fit dowel pin holes on side using DIRECTCONNECT mounting patterns.



Payload attaches to tooling plate directconnect mounting pattern with screws and locates using slip fit dowel pin holes.

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range*	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary****
Air Humidity	**Low Moisture Content (dry)**

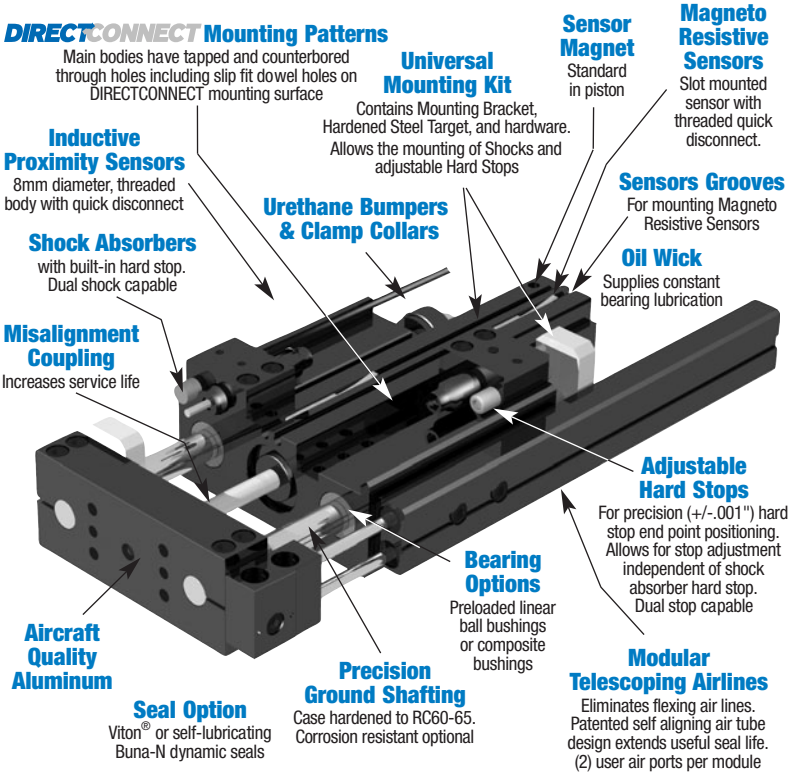
Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~300° F**	**-30°~150° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles**†
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

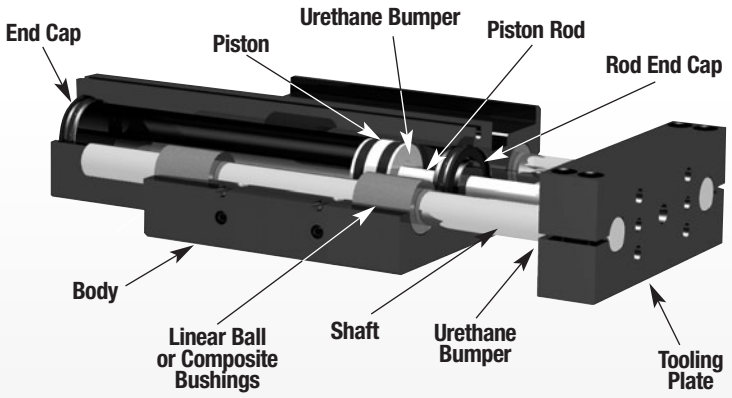
Application Restrictions
Flow controls, shock absorbers and urethane bumpers recommended for nearly all applications.
Use composite bushing in dirty or gritty environments.
Never use silicone based lubricants with composite bushings.

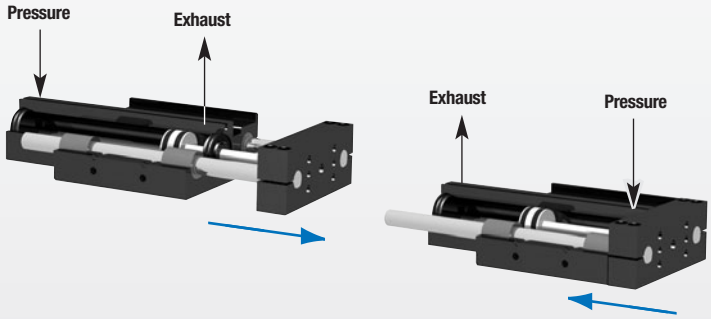
*Higher pressure possible. Consult factory with application details.
**Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features



Operating Principle



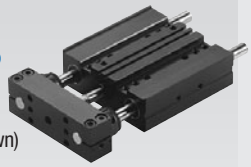


- A double acting internal cylinder located within the body drives a piston rod that connects to the tooling plate with a misalignment coupling.
- The tooling is attached to two hardened steel shafts which are supported by and move in four linear bushings located in the body.

Designed and manufactured in the USA

Style-E Short Body Thruster

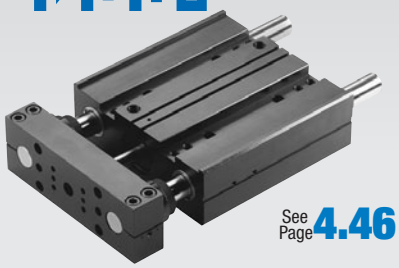
Size -06M
-08M
-10M (shown)
-12M
-16M



See Page 4.42
See Page 4.44

Style-E Short Body Thruster

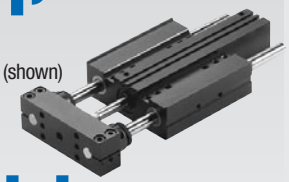
Size -20M (shown)
-25M



See Page 4.46

Style-L Long Body Thruster

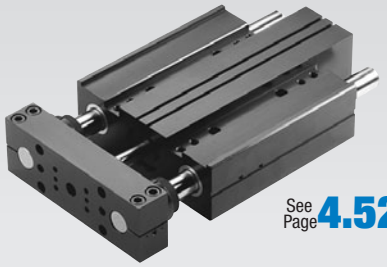
Size -06M
-08M
-10M (shown)
-12M
-16M



See Page 4.48
See Page 4.50

Style-L Long Body Thruster

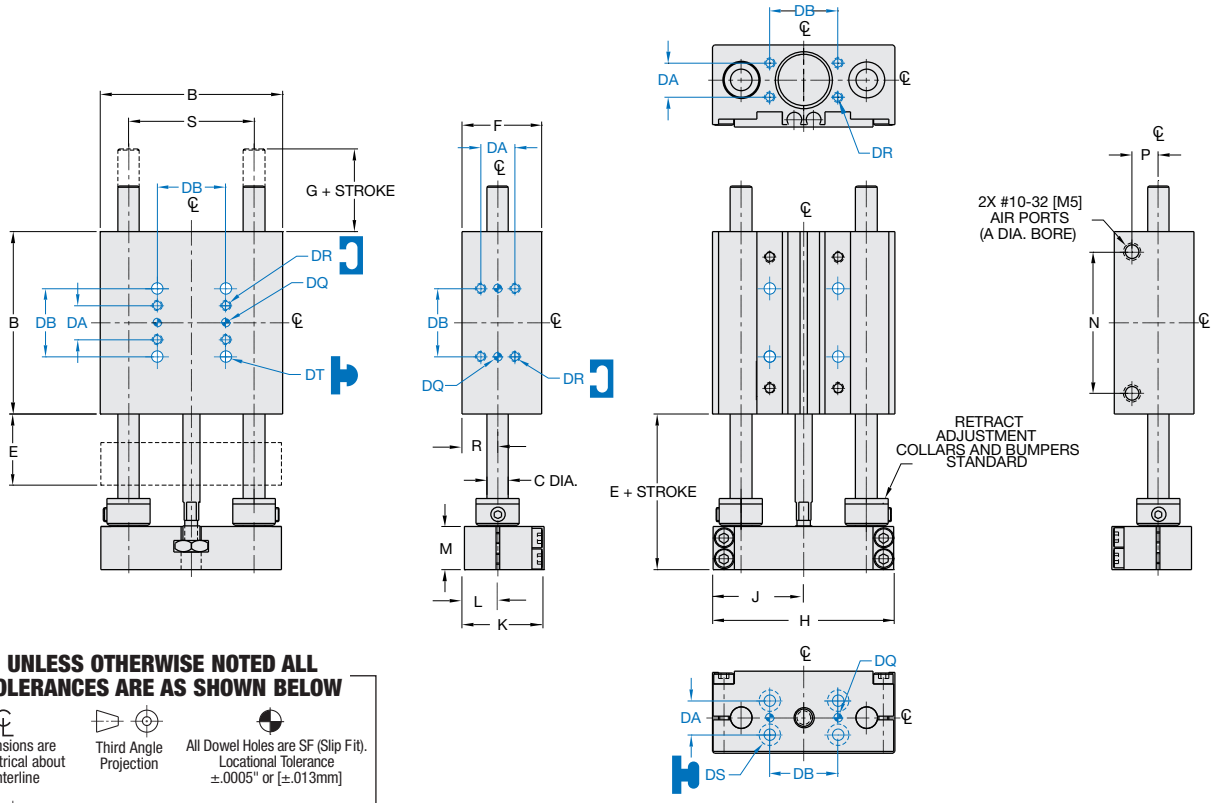
Size -20M (shown)
-25M



See Page 4.52

SHORT BODY THRUSTER DLT -06M, 08M -E
BUILT-IN REPAIRABLE CYLINDER

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

- Dimensions are symmetrical about centerline
- Third Angle Projection
- All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
- Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

BASIC UNIT DIMENSIONS

(BORE DIA. / BODY SIZE / SHAFT DIA.)

MODEL #	A	B	C	E	F	G	H	J	K	L	M	N	P	R	S
DLT-06	0.563	2.00	0.236	0.783	0.88	0.66	1.980	.990	0.875	.365	0.470	1.55	0.29	.390	1.375
DLT-08	0.563	2.50	0.315	0.783	0.88	0.41	2.470	1.235	0.875	.365	0.470	2.05	0.29	.390	1.750
DLT-06M	14	50.8	6.0	19.9	22.4	16.8	50.3	25.1	22.2	9.3	11.9	39.4	7.4	9.9	34.93
DLT-08M	14	63.5	8.0	19.9	22.4	10.4	62.7	31.0	22.2	9.3	11.9	52.1	7.4	9.9	44.95

DIRECT CONNECT DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DA	.375	9.5
DB	.750	19.1
DQ	.0940 x .078 DP	3H7 x 2 DP
DR	#4-40 x .25 DP	M3 x 6 DP
DS	Clr & C'bore for #4	Clr & C'bore for M3
DT	Clr & C'bore for #4	Clr & C'bore for M3

How to Order: Basic Unit

BASIC MODEL | METRIC | STYLE | STROKE | SHAFTING

DLT - [SIZE] - M - E - C - [STROKE] - V - S

SIZE | BEARING | VITON® SEALS

SIZE 06, 08

METRIC M

STYLE E Short body thruster with built-in repairable cylinder

BEARING C Composite bushings

STROKE (inches)
DLT-06 .25, .5, 1, 1.25
DLT-08 .25, .5, 1, 1.5, 1.75

STROKE (mm)
DLT-06M 6, 12, 25, 30
DLT-08M 6, 12, 25, 40, 44

Custom strokes available. Please consult factory.

VITON® V Viton® seals

SHAFTING S Corrosion resistant shafting

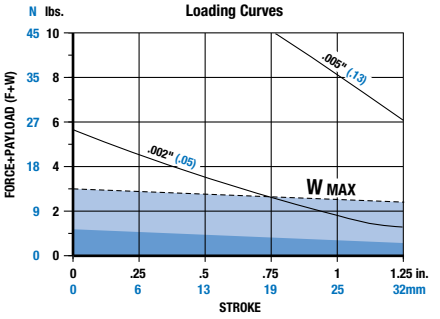
SAMPLE ORDER: DLT-06-E-C-1.5-V
Ex: Thruster, Size 06, Short Body Style, Composite Bushings, 1.5 Inch Stroke, Viton® Seals

Accessories: (Order Separately)

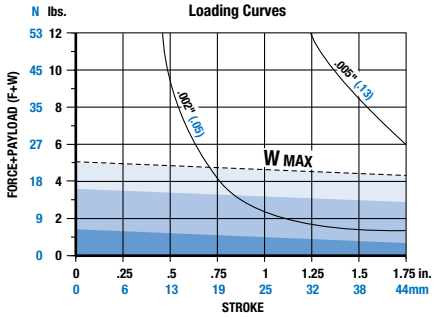
	DLT-06M	DLT-08M	QTY/THRUSTER
SHOCK/STOP ACCESSORIES			
Universal Mounting Kit (Shock or Stop)	OSAK-069	OSAK-070	1, 2 ,3, or 4
Shock Absorber (2 Max. on -06)*	SHOK-030	SHOK-030	1, 2 ,3, or 4
Adjustable Hard Stop*	DLT-0623	DLT-0623	1, 2 ,3, or 4
Urethane Bumper/Stop Collar Kit	OSAK-067	OSAK-068	1
INDUCTIVE SENSOR ACCESSORIES†			
Inductive Sensor Mounting Kit	OSMK-076	OSMK-077	1 or 2
Inductive Sensor PNP Qk. Disconnect †	OISP-014	OISP-014	1 or 2
Inductive Sensor NPN Qk. Disconnect †	OISN-014	OISN-014	1 or 2
Quick. Disconnect 2M Cable Length †	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length †	CABL-013	CABL-013	1 or 2
MAGNETIC SENSOR ACCESSORIES**			
Magneto Resistive Sensor PNP Qk. Disc.†	OHSP-017	OHSP-017	1 or 2
Magneto Resistive Sensor NPN Qk. Disc.†	OHSN-017	OHSN-017	1 or 2
Quick. Disconnect 2M Cable Length †	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length †	CABL-013	CABL-013	1 or 2
PNEUMATIC ACCESSORIES			
#10-32 Adjustable Flow Control (Imperial)	VLVF-007	VLVF-007	1 or 2
M5 Adjustable Flow Control (Metric)	VLVF-008	VLVF-008	1 or 2
Cylinder Seal Repair Kit	SLKT-108	SLKT-108	1
Viton® Cylinder Seal Repair Kit	SLKT-108V	SLKT-108V	1

*Requires Universal Mounting Kit †Sensor and cable sold separately **Piston magnet standard

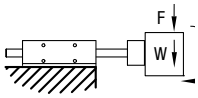
DLT-06M-E



DLT-08M-E



F=Externally applied force (lbs. or N)
W=Weight of payload (lbs. or N)
F+W=Total deflection force (lbs. or N)
M=Maximum moment (in.-lb. or N-m)



Shock Absorbers and Flow Controls are recommended for nearly all applications

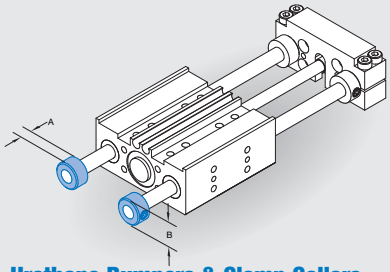
Use **Double Shocks** in both directions | Use **Single Shock** in both directions | Use **Bumpers or Cushioned Cylinder**

Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional accelera tion effect of gravity.

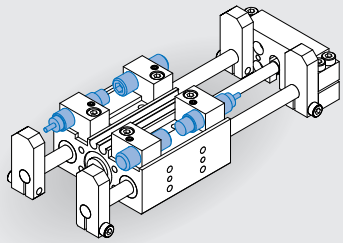
Specifications	DLT-06	DLT-06M
Maximum Air Pressure	100 psi	7 bar
Thrust Force @ 80psi/5.5 bar	20 lbs.	84 N
Weight (Basic Unit)	0.34 lbs.	0.15 kg
Cylinder Bore Diameter	0.563"	14.3 mm
Shaft Diameter	0.236"	6 mm
Max (**M**) Vertical Motion	5 in.-lbs.	0.6 N-m

Specifications	DLT-08	DLT-08M
Maximum Air Pressure	100 psi	7 bar
Thrust Force @ 80psi/5.5 bar	20 lbs.	89 N
Weight (Basic Unit)	0.65 lbs.	0.30 kg
Cylinder Bore Diameter	0.563"	14.3 mm
Shaft Diameter	0.315"	8 mm
Max (**M**) Vertical Motion	10 in.-lbs.	1.1 N-m

Accessory Mounting Technical Data

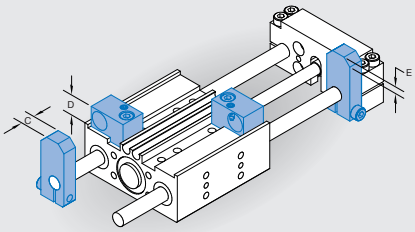


Urethane Bumpers & Clamp Collars
- Urethane Bumpers for shock absorption and noise dampening
- Adjustable Clamp Collars for end of stroke position adjustment
- Kit contains (2) Collars and (2) Shock P ads for adjustment of travel in one direction
- (1) Kit required for extend (kit for retract comes standard)

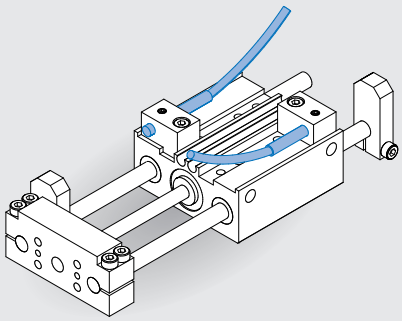


Adjustable Hard Stops
- For precision (+/-.001") end point positioning of retract position
- Allows for end stop position adjustment independent of shock absorber hard stop
- Allen wrench adjustable

Shock Absorbers
- Full stroking piston rod
- Built-in hard stop
- Position adjustable

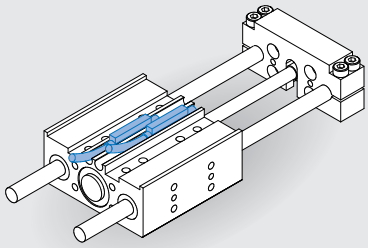


Universal Mounting Kit
- Kit mounts (1) Shock Absorber or (1) Adjustable Hard Stop
- Kit includes (1) Mounting Bracket, (1) Hardened Tool Steel Target and Hardware
- Target allows for unlimited retract stroke adjustment (no extend position adjustment). Fine adjustment is achieved using Adjustable Hard Stop or Shock Absorber
- Mounting Bracket keys into body for secure positioning and excellent rigidity
- Four possible mounting positions



Inductive Proximity Sensors
- 4 mm diameter
- Threaded quick disconnect with built-in LED output
- PNP and NPN a vailable

Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

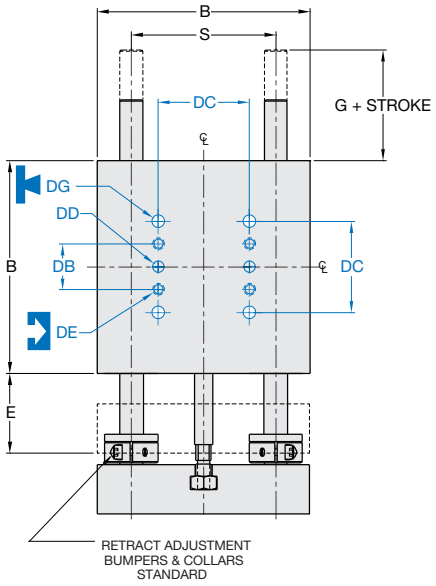


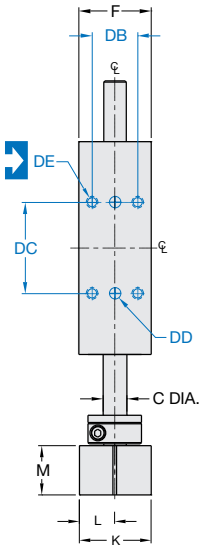
Magneto Resistive Sensors
- No mounting kit required (slot mounted)
- Threaded quick disconnect with built-in LED output
- PNP and NPN a vailable
- Low profile

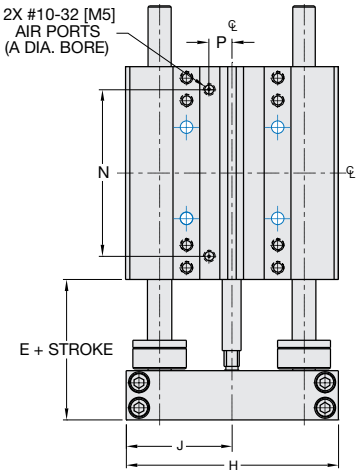
Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

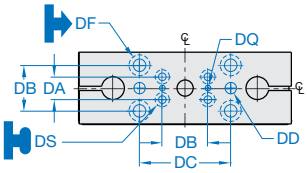
	A	B	C	D	E
DLT-06	.236"	.470	.250	.310	.270
DLT-08	.236"	.630	.250	.310	.270
DLT-06M	6mm	12.0	6.4	7.9	6.9
DLT-08M	6mm	16.0	6.4	7.9	6.9

SHORT BODY THRUSTER DLT -10M, 12M, 16M -E
BUILT-IN REPAIRABLE CYLINDER









UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

- Dimensions are symmetrical about centerline
- Third Angle Projection
- All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
- Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

BASIC UNIT DIMENSIONS

(BORE DIA. / BODY SIZE / SHAFT DIA.)

MODEL #	A	B	C	E	F	G	H	J	K	L	M	N	P	S
DLT-10	3/4	3.50	.375	1.313	1.19	.82	3.490	1.740	1.178	.584	.813	2.75	.37	2.375
DLT-12	1	4.00	.472	1.313	1.63	.82	3.985	1.985	1.615	.802	.813	3.28	.37	2.750
DLT-16	1	4.75	.630	1.375	1.63	.76	4.735	2.360	1.615	.802	.813	4.03	.37	3.250
DLT-10M	19	88.9	9.5	33.4	30.2	20.8	88.6	44.2	29.9	14.8	20.7	69.7	9.4	60.33
DLT-12M	25	101.6	12.0	33.4	41.4	20.8	101.2	50.4	41.0	20.4	20.7	83.3	9.4	69.85
DLT-16M	25	120.7	16.0	34.9	41.4	19.3	120.3	59.9	41.0	20.4	20.7	102.4	9.4	82.55

DIRECT CONNECT DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DA	.375	9.5
DB	.750	19.1
DC	1.500	38.1
DD	.1880 x .25 DP	5mm H7 x 6 DP
DE	#10-32 x .34 DP	M5 x 8.5 DP
DF	Clearance for #10	Clearance for M5
DG	Clearance for #10	Clearance for M5
DQ	.0940 x .078 DP	3H7 x 2 DP
DS	Clr & C'bore for #4	Clr & C'bore for M3

How to Order: Basic Unit

BASIC MODEL | METRIC | STYLE | STROKE | SHAFTING

DLT - [SIZE] - M - E - [BEARING] - [STROKE] - V - S

SIZE **10, 12, 16**
METRIC **M**
STYLE **E** Short body thruster with built-in repairable cylinder
BEARING **B** Linear ball bearings
C Composite bushings
STROKE (inches)
DLT-10 **1-2** @ 1" increments
DLT-12 **1-2** @ 1" increments
DLT-16 **1-3** @ 1" increments
Custom strokes available. Please consult factory.
STROKE (mm)
DLT-10M **25, 50**
DLT-12M **25, 50**
DLT-16M **25, 50, 75**
VITON® **V** Viton® seals
SHAFTING **S** Corrosion resistant shafting

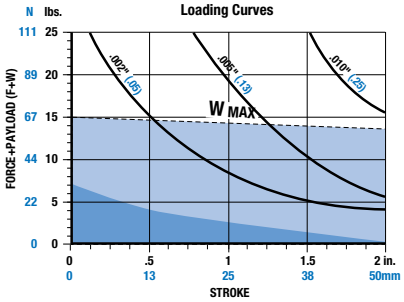
SAMPLE ORDER: DLT-10-E-C-1-V
Ex: Thruster, Size 10, Short Body Style, Composite Bushings, 1 inch Stroke, Viton® Seals

Accessories: (Order Separately)

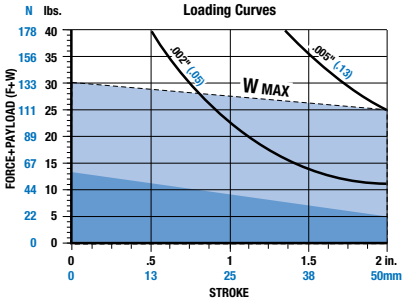
	DLT-10M	DLT-12M	DLT-16M	QTY/THRUSTER
SHOCK/STOP ACCESSORIES				
Universal Mounting Kit (Shock, Stop or Sensor)	OSAK-055	OSAK-057	OSAK-059	1,2,3 or 4
Urethane Bumper/Clamp Collar Kit	OSAK-056	OSAK-058	OSAK-060	1
Urethane Bumper/Clamp Collar Kit (-10M)	OSAK-065			1
Urethane Bumper/Clamp Collar Kit (-12M)		OSAK-066		1
Shock Absorber*	SHOK-028	SHOK-010	SHOK-010	1,2,3 or 4
Adjustable Hard Stop*	DLT-1023	DLT-1023	DLT-1023	1,2,3 or 4
INDUCTIVE SENSOR ACCESSORIES†				
Inductive Sensor PNP Qk. Disconnect*	OISP-011	OISP-011	OISP-011	1 or 2
Inductive Sensor NPN Qk. Disconnect*	OISN-011	OISN-011	OISN-011	1 or 2
Quick. Disconnect 2M Cable Length †	CABL-010	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length †	CABL-013	CABL-013	CABL-013	1 or 2
MAGNETIC SENSOR ACCESSORIES†**				
Magneto Resistive Sensor PNP Qk. Disc.†	OHSP-017	OHSP-017	OHSP-017	1 or 2
Magneto Resistive Sensor NPN Qk. Disc.†	OHSN-017	OHSN-017	OHSN-017	1 or 2
Quick. Disconnect 2M Cable Length †	CABL-010	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length †	CABL-013	CABL-013	CABL-013	1 or 2
PNEUMATIC ACCESSORIES				
1/8 NPT Telescopic Airlines (up to 2")	OTAL-037	OTAL-037	OTAL-037	1,2,3 or 4
1/8 NPT Telescopic Airlines (up to 3")	OTAL-038	OTAL-038	OTAL-038	1,2,3 or 4
#10-32 Adjustable Flow Control	VLVF-007	VLVF-007	VLVF-007	1 or 2
G1/8 Telescopic Airlines (up to 50mm)	OTAL-043	OTAL-043	OTAL-043	1,2,3 or 4
G1/8 Telescopic Airlines (up to 80mm)	OTAL-044	OTAL-044	OTAL-044	1,2,3 or 4
M5 Adjustable Flow Control	VLVF-008	VLVF-008	VLVF-008	1 or 2
Cylinder Seal Repair Kit	SLKT-100	SLKT-102	SLKT-102	1
Viton® Cylinder Seal Repair Kit	SLKT-100V	SLKT-102V	SLKT-102V	1

*Requires Universal Mounting Kit †Sensor and cable sold separately **Piston magnet standard

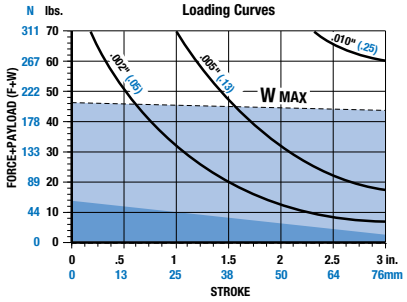
DLT-10M-E



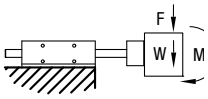
DLT-12M-E



DLT-16M-E



F=Externally applied force (lbs. or N)
W=Weight of payload (lbs. or N)
F+W=Total force (lbs. or N)



Shock Absorbers and Flow Controls are recommended for nearly all applications

(**W**) in this range use **Single Shock** in both directions

W in this range use **Urethane Bumpers**

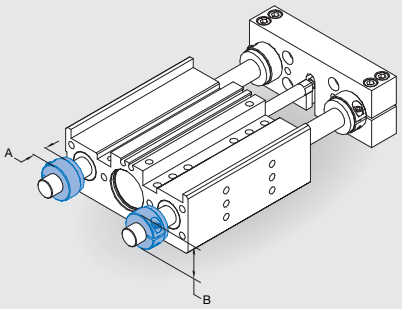
Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional accelera tion effect of gravity.

Specifications	DLT-10	DLT-10M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	35 lbs.	155 N
Weight (Basic Unit)	1.87 lbs.	.84 kg
Additional Weight per Stroke	0.08 lbs./in.	1.5g/mm
Cylinder Bore Diameter	3/4"	19mm
Shaft Diameter	0.375"	9.5mm

Specifications	DLT-12	DLT-12M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	62 lbs.	275 N
Weight (Basic Unit)	2.98 lbs.	1.35 kg
Additional Weight per Stroke	0.12 lbs./in.	2.2g/mm
Cylinder Bore Diameter	1"	25mm
Shaft Diameter	0.472"	12mm

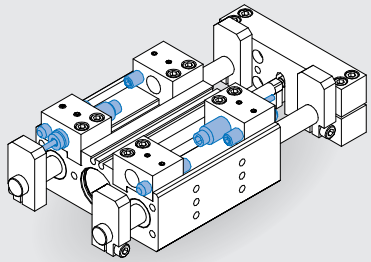
Specifications	DLT-16	DLT-16M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	62 lbs.	275 N
Weight (Basic Unit)	4.56 lbs.	2.07 kg
Additional Weight per Stroke	0.20 lbs./in.	3.5g/mm
Cylinder Bore Diameter	1"	25mm
Shaft Diameter	0.630"	16mm

Accessory Mounting Technical Data



Urethane Bumpers & Clamp Collars

- Urethane Bumpers for shock absorption and noise dampening
- Adjustable Clamp Collars for end of stroke position adjustment
- Kit contains (2) Collars and (2) Shock P ads for adjustment of travel in one direction
- (1) Kit required for extend (kit for retract comes standard)

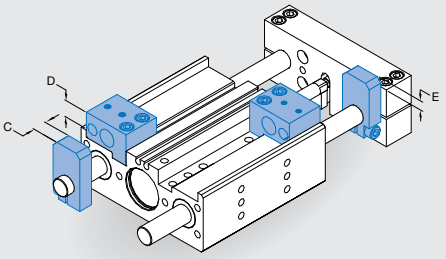


Adjustable Hard Stops

- For precision (+/-.001") end point positioning
- Allows for end stop position adjustment independent of shock absorber hard stop
- Allen wrench adjustable

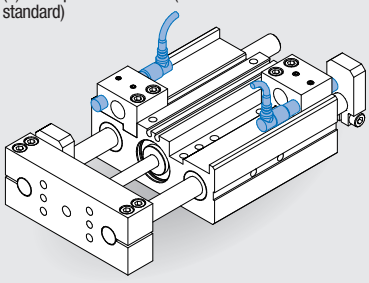
Shock Absorbers

- Full stroking piston rod
- Built-in hard stop
- Allen wrench adjustable



Universal Mounting Kit

- Kit mounts (1) Shock Absorber and (1) Inductive Proximity Sensor or (1) Shock and (1) Adjustable Hard Stop
- Kit includes (1) Mounting Bracket, (1) Hardened Tool Steel Target and Hardware
- Target allows for unlimited stroke adjustment. Fine adjustment is achieved using Adjustable Hard Stop or Shock Absorber
- Mounting Bracket keys into body for secure positioning and excellent rigidity
- Four possible mounting positions

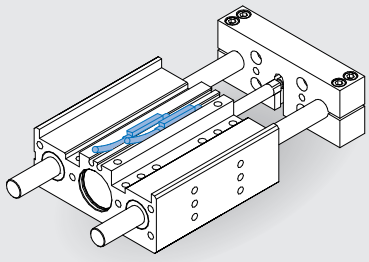


Inductive Proximity Sensors

- 8mm diameter
- Threaded quick disconnect with built-in LED output
- PNP and NPN a vailable

Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

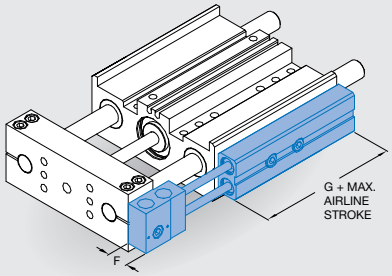


Magneto Resistive Sensors

- No mounting kit required (slot mounted)
- Threaded quick disconnect with built-in LED output
- PNP and NPN a vailable
- Low profile

Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length



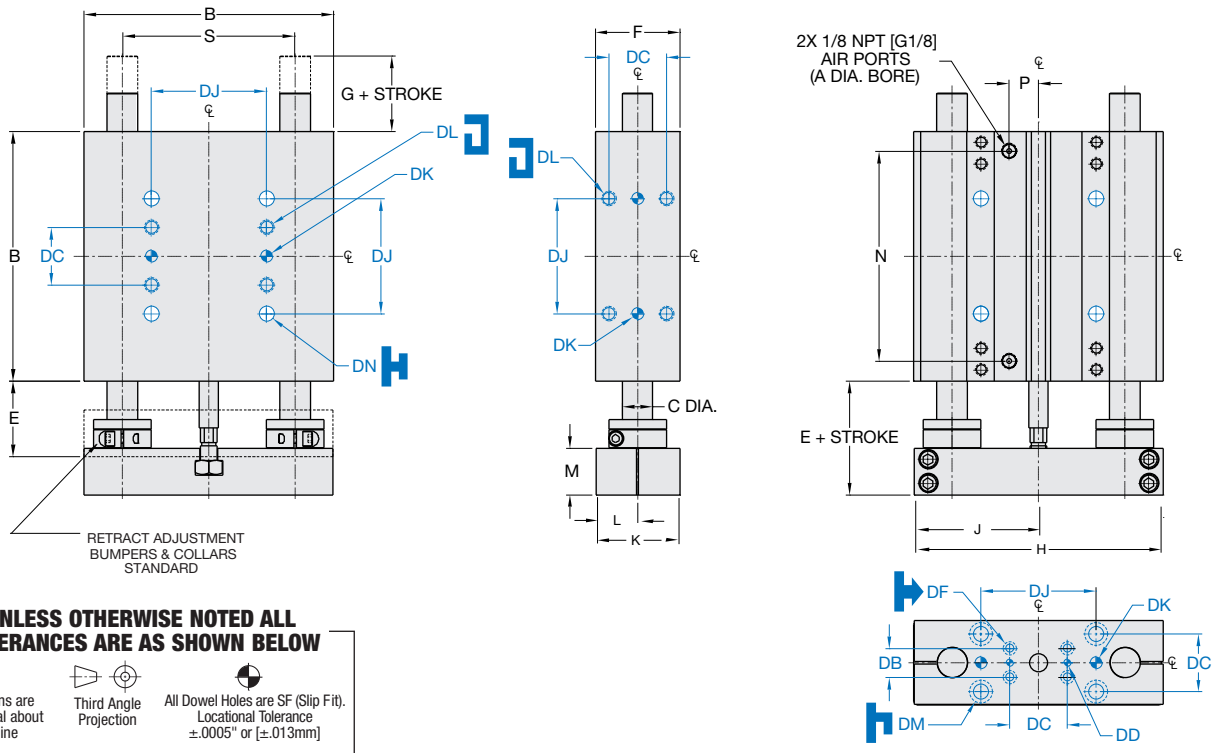
Telescoping Airlines

- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- 1/8 NPT or G1/8 pipe threads
- (2) user air ports per module

	A	B	C	D	E	F	G
DLT-10	.343"	.87	.375	.480	.320	.577	3.60
DLT-12	.375"	.94	.375	.450	.230	.577	3.60
DLT-16	.437"	1.31	.437	.450	.340	.577	3.60
DLT-10M	8.7mm	22.1	9.5	12.2	8.1	14.7	91.4
DLT-12M	9.5mm	23.9	9.5	11.4	5.8	14.7	91.4
DLT-16M	11.1mm	33.3	11.1	11.4	8.6	14.7	91.4

SHORT BODY THRUSTER DLT -20M, 25M -E
BUILT-IN REPAIRABLE CYLINDER

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

- Dimensions are symmetrical about centerline
- Third Angle Projection
- All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
- Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

BASIC UNIT DIMENSIONS

(BORE DIA. / BODY SIZE / SHAFT DIA.)

MODEL #	A	B	C	E	F	G	H	J	K	L	M	N	P	S
DLT-20	1 1/2	6.50	.787	1.960	2.20	.960	6.480	3.230	2.180	1.080	1.210	5.47	.77	4.300
DLT-25	1 1/2	7.50	.984	2.170	2.20	1.170	7.480	3.730	2.180	1.080	1.420	6.47	.77	5.250
DLT-20M	38	165.1	20	49.8	55.9	24.4	164.6	82.0	55.4	27.4	30.7	138.9	19.5	114.30
DLT-25M	38	190.5	25	55.1	55.9	29.7	190.0	94.7	55.4	27.4	36.1	164.3	19.5	133.35

DIRECT CONNECT DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DB	.750	19.1
DC	1.500	38.1
DD	.1880 x .25DP	5mm H7 x 6DP
DF	Clearance for #10	Clearance for M5
DJ	3.000	76.2
DK	.3130 x .37 DP	8mm H7 x 9.4 DP
DL	3/8 -16 x .56 DP	M10 x 14.2 DP
DM	Clearance for 3/8	Clearance for M10
DN	Clearance for 3/8	Clearance for M10

How to Order: Basic Unit

BASIC MODEL | METRIC | STYLE | STROKE | SHAFTING

DLT - [ ] M - E - [ ] - [ ] - V - S

SIZE | BEARING | VITON® SEALS

SIZE **20, 25**

METRIC **M**

STYLE **E** Short body thruster with built-in repairable cylinder

BEARING **B** Linear ball bearings
C Composite bushings

STROKE (inches)
DLT-20 **1-4** @ 1" increments
DLT-25 **1-5** @ 1" increments

STROKE (mm)
DLT-20M **25, 50, 75, 100**
DLT-25M **25, 50, 75, 100, 125**

Custom strokes available. Please consult factory.

VITON® **V** Viton® seals

SHAFTING **S** Corrosion resistant shafting

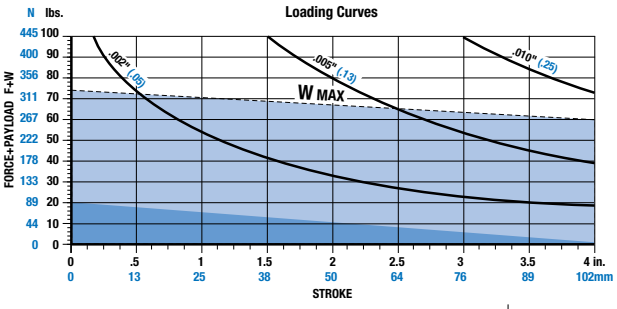
SAMPLE ORDER: DLT-20-E-B-4-V
Ex: Thruster, Size 20, Short Body Style, Linear Ball Bushings, 4 Inch Stroke, Viton® Seals

Accessories: (Order Separately)

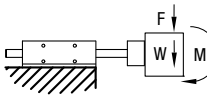
	DLT-20M	DLT-25M	QTY/THRUSTER
SHOCK/STOP ACCESSORIES			
Universal Mounting Kit (Shock, Stop or Sensor)	OSAK-061	OSAK-063	1, 2, 3 or 4
Urethane Bumper/Clamp Collar Kit	OSAK-062	OSAK-064	1
Shock Absorber (adjustable dampening)*	SHOK-029	SHOK-029	1, 2, 3 or 4
Adjustable Hard Stop*	DLT-1023	DLT-1023	1, 2, 3 or 4
INDUCTIVE SENSOR ACCESSORIES†			
Inductive Sensor PNP Qk. Disconnect*	OISP-011	OISP-011	1 or 2
Inductive Sensor NPN Qk. Disconnect*	OISN-011	OISN-011	1 or 2
Quick. Disconnect 2M Cable Length †	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length †	CABL-013	CABL-013	1 or 2
MAGNETIC SENSOR ACCESSORIES††			
Magneto Resistive Sensor PNP Qk. Disc.†	OHSP-017	OHSP-017	1 or 2
Magneto Resistive Sensor NPN Qk. Disc.†	OHSN-017	OHSN-017	1 or 2
Quick. Disconnect 2M Cable Length †	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length †	CABL-013	CABL-013	1 or 2
PNEUMATIC ACCESSORIES			
1/8 NPT Telescopic Airlines (up to 4")	OTAL-049	OTAL-049	1, 2 ,3 or 4
1/8 NPT Telescopic Airlines (up to 5")	OTAL-050	OTAL-050	1, 2 ,3 or 4
1/8 NPT Adjustable Flow Control	VLVF-004	VLVF-004	1 or 2
G1/8 Telescopic Airlines (up to 100mm)	OTAL-051	OTAL-051	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 125mm)	OTAL-052	OTAL-052	1, 2, 3 or 4
G1/8 Adjustable Flow Control	VLVF-005	VLVF-005	1 or 2
Cylinder Seal Repair Kit	SLKT-104	SLKT-104	1
Viton® Cylinder Seal Repair Kit	SLKT-104V	SLKT-104V	1

*Requires Universal Mounting Kit †Sensor and cable sold separately **Piston magnet standard

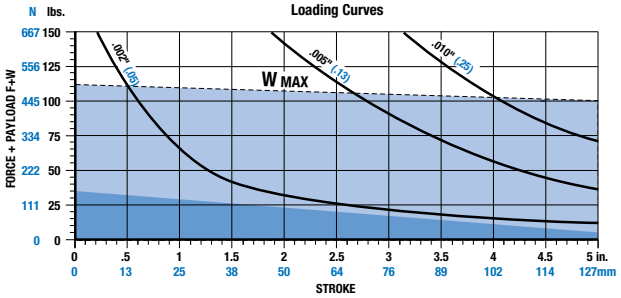
DLT-20M-E



F=Externally applied force (lbs. or N)
W=Weight of payload (lbs. or N)
F+W=Total force (lbs. or N)



DLT-25M-E



Shock Absorbers and Flow Controls are recommended for nearly all applications

(**W**) in this range use **Single Shock** in both directions

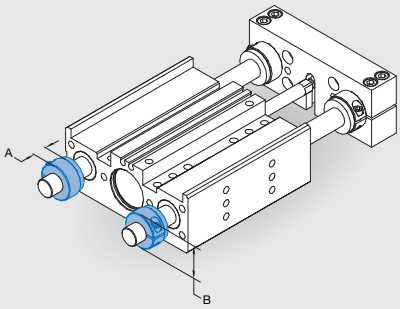
(**W**) in this range use **Urethane Bumpers**

Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional accelera tion effect of gravity.

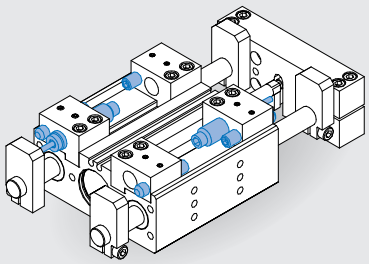
Specifications	DLT-20	DLT-20M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	140 lbs.	622 N
Weight (Basic Unit)	11.6 lbs.	5.2 kg
Additional Weight per Stroke	0.31 lbs./in.	5.5g/mm
Cylinder Bore Diameter	1-1/2"	38mm
Shaft Diameter	0.787"	20mm

Specifications	DLT-25	DLT-25M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	140 lbs.	622 N
Weight (Basic Unit)	16.4 lbs.	7.42 kg
Additional Weight per Stroke	0.47 lbs./in.	8.4g/mm
Cylinder Bore Diameter	1-1/2"	38mm
Shaft Diameter	0.984"	25mm

Accessory Mounting Technical Data *(For detailed information refer to option specification pages at end of catalog)*

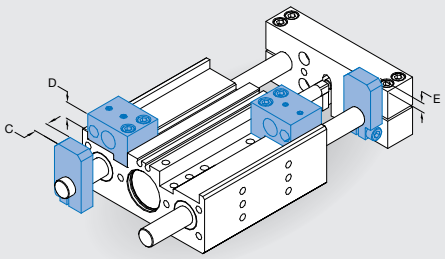


Urethane Bumpers & Clamp Collars
- Urethane Bumpers for shock absorption and noise dampening
- Adjustable Clamp Collars for end of stroke position adjustment
- Kit contains (2) Collars and (2) Shock Pads for adjustment of travel in one direction
- (1) Kit required for extend (kit for retract comes standard)

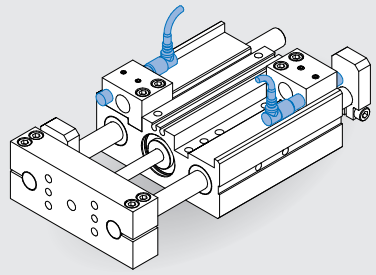


Adjustable Hard Stops
- For precision (+/-.001") end point positioning
- Allows for end stop position adjustment independent of shock absorber hard stop
- Allen wrench adjustable

Shock Absorbers
- Full stroking piston rod
- Built-in hard stop
- Position adjustable
- Adjustable dampening

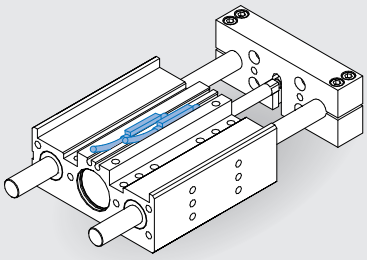


Universal Mounting Kit
- Kit mounts (1) Shock Absorber and (1) Inductive Proximity Sensor or (1) Shock and (1) Adjustable Hard Stop
- Kit includes (1) Mounting Bracket, (1) Hardened Tool Steel Target and Hardware
- Target allows for unlimited stroke adjustment. Fine adjustment is achieved using Adjustable Hard Stop or Shock Absorber
- Mounting Bracket keys into body for secure positioning and excellent rigidity
- Four possible mounting positions

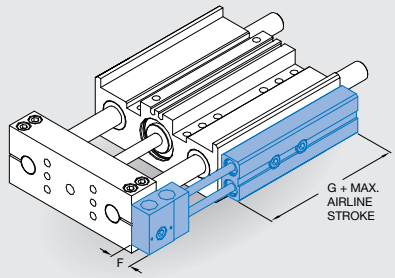


Inductive Proximity Sensors
- 8mm diameter
- Threaded quick disconnect with built-in LED output
- PNP and NPN available

Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length



Magneto Resistive Sensors
- No mounting kit required (slot mounted)
- Built-in LED output
- PNP and NPN available
- Quick disconnect cable
- Low profile



Telescoping Airlines
- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- 1/8 NPT or G1/8 pipe threads
- (2) user air ports per module

	A	B	C	D	E	F	G
DLT-20	.500"	1.50	.500	.92	.67	.577	3.60
DLT-25	.500"	1.75	.500	.92	.67	.577	3.60
DLT-20M	12.7mm	38.1	12.7	22.4	17.0	14.7	91.4
DLT-25M	12.7mm	44.5	12.7	22.4	17.0	14.7	91.4

LONG BODY THRUSTER DLT -06M, 08M -L
BUILT-IN REPAIRABLE CYLINDER

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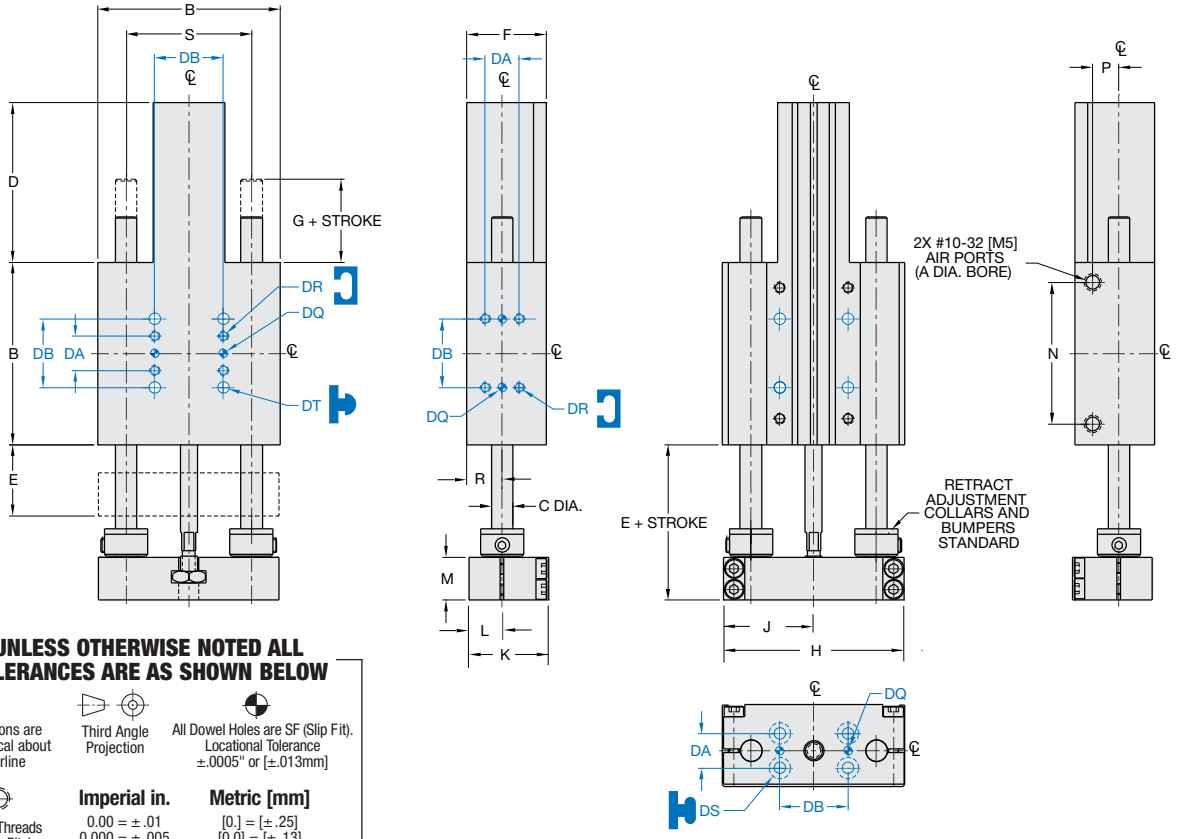


UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

- Dimensions are symmetrical about centerline
- Third Angle Projection
- All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
- Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

BASIC UNIT DIMENSIONS

BORE DIA. · BODY SIZE · SHAFT DIA.

MODEL #	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S
DLT-06	0.563	2.00	0.236	1.75	0.783	0.88	0.66	1.980	.990	0.875	.365	0.470	1.55	0.21	.390	1.375
DLT-08	0.563	2.50	0.315	1.75	0.783	0.88	0.41	2.470	1.235	0.875	.365	0.470	2.05	0.21	.390	1.750
DLT-06M	14	50.8	6.0	44.4	19.9	22.4	16.8	50.3	25.1	22.2	9.3	11.9	39.4	5.4	9.9	34.93
DLT-08M	14	63.5	8.0	44.4	19.9	22.4	10.4	62.7	31.0	22.2	9.3	11.9	52.1	5.4	9.9	44.45

DIRECT CONNECT DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DA	.375	9.5
DB	.750	19.1
DQ	.0940 x .078 DP	3H7 x 2 DP
DR	#4-40 x .25 DP	M3 x 6 DP
DS	Clr & C'bore for #4	Clr & C'bore for M3
DT	Clr & C'bore for #4	Clr & C'bore for M3

How to Order: Basic Unit

BASIC MODEL · METRIC · STYLE · STROKE · SHAFTING

DLT - [ ] M - L - C - [ ] - V - S

SIZE · BEARING · VITON® SEALS

SIZE **06, 08**

METRIC **M**

STYLE **L** Long body thruster with built-in repairable cylinder

BEARING **C** Composite bushings

STROKE (inches)
DLT-06 **.5, 1, 1.5, 2, 2.5, 3,**
DLT-08 **.5, 1, 1.5, 2, 2.5, 3, 3.5**

STROKE (mm)
DLT-06M **12, 25, 40, 50, 65, 75**
DLT-08M **12, 25, 40, 50, 65, 75, 85**

Custom strokes available. Please consult factory.

VITON® **V** Viton® seals

SHAFTING **S** Corrosion resistant shafting

SAMPLE ORDER: DLT-06-M-L-C-50-V

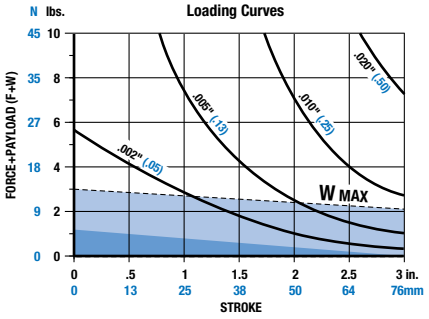
Ex: Thruster, Size 06, Metric, Long Body Style, Composite Bushings, 50mm Stroke, Viton® Seals

Accessories: (Order Separately)

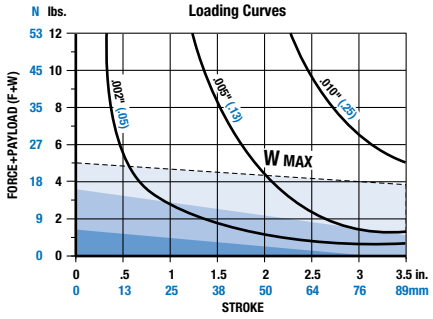
	DLT-06M	DLT-08M	QTY/THRUSTER
SHOCK/STOP ACCESSORIES			
Universal Mounting Kit (Shock or Stop)	OSAK-069	OSAK-070	1, 2, 3, or 4
Shock Absorber (2 Max. on -06)*	SHOK-030	SHOK-030	1, 2, 3, or 4
Adjustable Hard Stop*	DLT-0623	DLT-0623	1, 2, 3, or 4
Urethane Bumper/Stop Collar Kit	OSAK-067	OSAK-068	1
INDUCTIVE SENSOR ACCESSORIES†			
Inductive Sensor Mounting Kit	OSMK-076	OSMK-077	1 or 2
Inductive Sensor PNP Qk. Disconnect*†	OISP-014	OISP-014	1 or 2
Inductive Sensor NPN Qk. Disconnect*†	OISN-014	OISN-014	1 or 2
Quick Disconnect 2M Cable Length †	CABL-010	CABL-010	1 or 2
Quick Disconnect 5M Cable Length †	CABL-013	CABL-013	1 or 2
MAGNETIC SENSOR ACCESSORIES††			
Magneto Resistive Sensor PNP Qk. Disc.†	OHSP-017	OHSP-017	1 or 2
Magneto Resistive Sensor NPN Qk. Disc.†	OHSN-017	OHSN-017	1 or 2
Quick. Disconnect 2M Cable Length †	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length †	CABL-013	CABL-013	1 or 2
PNEUMATIC ACCESSORIES			
#10-32 Adjustable Flow Control (Imperial)	VLVF-007	VLVF-007	1 or 2
M5 Adjustable Flow Control (Metric)	VLVF-008	VLVF-008	1 or 2
Cylinder Seal Repair Kit	SLKT-108	SLKT-108	1
Viton® Cylinder Seal Repair Kit	SLKT-108V	SLKT-108V	1

*Requires Universal Mounting Kit †Sensor and cable sold separately **Piston magnet standard

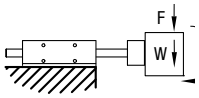
DLT-06M-L



DLT-08M-L



F=Externally applied force (lbs. or N)
W=Weight of payload (lbs. or N)
F+W=Total deflection force (lbs. or N)
M=Maximum moment (in.-lb. or N-m)



Shock Absorbers and Flow Controls are recommended for nearly all applications

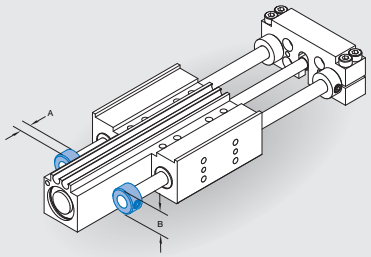
Use **Double Shocks** in both directions | Use **Single Shock** in both directions | Use **Bumpers or Cushioned Cylinder**

Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional accelera tion effect of gravity.

Specifications	DLT-06	DLT-06M
Maximum Air Pressure	100 psi	7 bar
Thrust Force @ 80psi/5.5bar	20 lbs.	89 N
Weight (Basic Unit)	0.61 lbs.	0.28 kg
Cylinder Bore Diameter	0.563"	14.3 mm
Shaft Diameter	0.236"	6 mm
Max (**M**) Vertical Motion	5 in.-lbs.	0.6 N-m

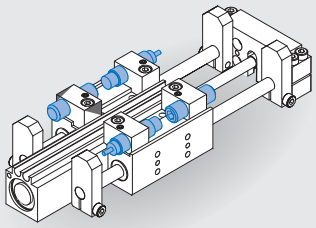
Specifications	DLT-08	DLT-08M
Maximum Air Pressure	100 psi	7 bar
Thrust Force @ 80psi/5.5bar	20 lbs.	89 N
Weight (Basic Unit)	0.96 lbs.	0.44 kg
Cylinder Bore Diameter	0.563"	14.3 mm
Shaft Diameter	0.315"	8.0 mm
Max (**M**) Vertical Motion	10 in.-lbs.	1.3 N-m

Accessory Mounting Technical Data



Urethane Bumpers & Clamp Collars

- Urethane Bumpers for shock absorption and noise dampening
- Adjustable Clamp Collars for end of stroke position adjustment
- Kit contains (2) Collars and (2) Shock P ads for adjustment of travel in one direction
- (1) Kit required for extend (kit for retract comes standard)

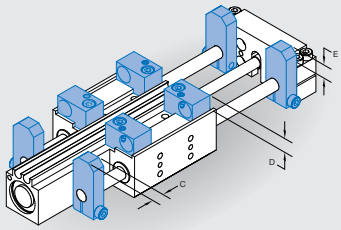


Adjustable Hard Stops

- For precision (+/-.001") end point positioning of retract position
- Allows for end stop position adjustment independent of shock absorber hard stop
- Allen wrench adjustable

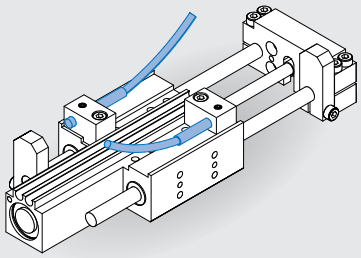
Shock Absorbers

- Full stroking piston rod
- Built-in hard stop
- Position adjustable
- Adjustable dampening



Universal Mounting Kit

- Kit mounts (1) Shock Absorber or (1) Adjustable Hard Stop
- Kit includes (1) Mounting Bracket, (1) Hardened Tool Steel Target and Hardware
- Target allows for unlimited retract stroke adjustment (no extend position adjustment). Fine adjustment is achieved using Adjustable Hard Stop or Shock Absorber
- Mounting Bracket keys into body for secure positioning and excellent rigidity
- Four possible mounting positions

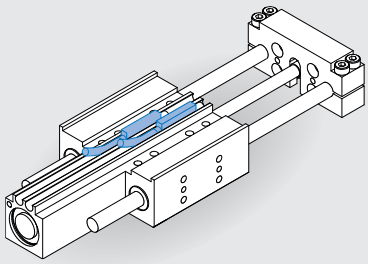


Inductive Proximity Sensors

- 4mm diameter
- Threaded quick disconnect with built-in LED output
- PNP and NPN a vailable

Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length



Magneto Resistive Sensors

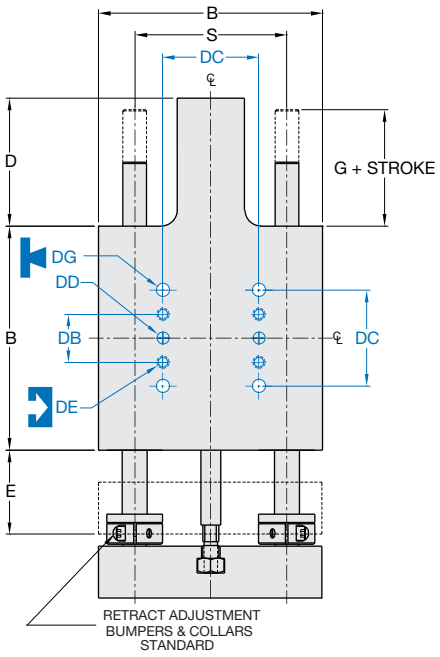
- No mounting kit required (slot mounted)
- Threaded quick disconnect with built-in LED output
- PNP and NPN a vailable
- Low profile

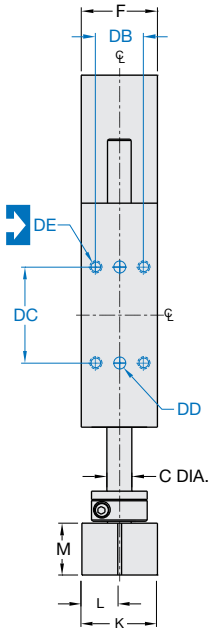
Quick Disconnect Cable

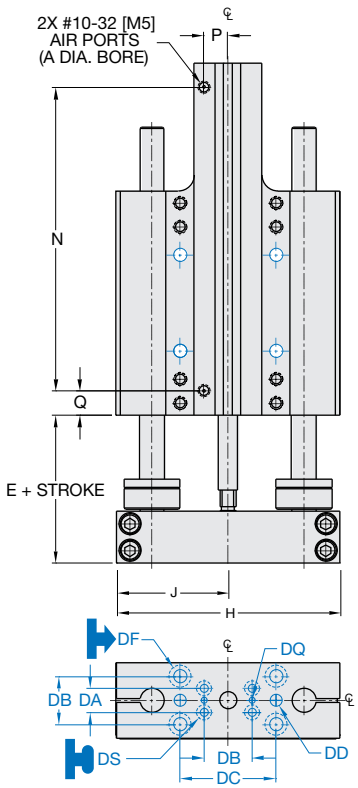
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

	A	B	C	D	E
DLT-06	.236"	.47	.250	.31	.27
DLT-08	.236"	.63	.250	.31	.27
DLT-06M	6.0 mm	12.0	6.4	7.9	6.9
DLT-08M	6.0 mm	16.0	6.4	7.9	6.9

LONG BODY THRUSTER DLT -10M, 12M, 16M -L
BUILT-IN REPAIRABLE CYLINDER







UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

- Dimensions are symmetrical about centerline
- Third Angle Projection
- All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
- Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

BASIC UNIT DIMENSIONS

BORE DIA. / BODY SIZE / SHAFT DIA.

MODEL #	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	S
DLT-10	.75	3.50	.375	2.00	1.313	1.19	0.82	3.490	1.740	1.178	.584	.813	4.75	0.38	0.38	2.375
DLT-12	1	4.00	.472	2.50	1.313	1.63	0.82	3.985	1.985	1.615	.802	.813	5.78	0.37	0.36	2.750
DLT-16	1	4.75	.630	2.75	1.375	1.63	0.76	4.735	2.360	1.615	.802	.813	6.78	0.37	0.36	3.250
DLT-10M	19	88.9	9.5	50.8	33.4	30.2	20.8	88.6	44.2	29.9	14.8	20.7	120.7	9.6	9.6	60.33
DLT-12M	25	101.6	12.0	63.5	33.4	41.4	20.8	101.2	50.4	41.0	20.4	20.7	146.8	9.4	9.1	69.85
DLT-16M	25	120.7	16.0	69.9	34.9	41.4	19.3	120.3	59.9	41.0	20.4	20.7	172.2	9.4	9.1	82.55

DIRECT CONNECT DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DA	.375	9.5
DB	.750	19.1
DC	1.500	38.1
DD	.1880 x .25 DP	5mm H7 x 6 DP
DE	#10-32 x .34 DP	M5 x 8.5 DP
DF	Clearance for #10	Clearance for M5
DG	Clearance for #10	Clearance for M5
DQ	.0940 x .078 DP	3H7 x 2 DP
DS	Clr & C'bore for #4	Clr & C'bore for M3

How to Order: Basic Unit

BASIC MODEL | METRIC | STYLE | STROKE | SHAFTING

DLT - [ ] **M - L -** [ ] **-** [ ] **-** [ ] **-** [ ] **-** [ ]

SIZE | BEARING | VITON® SEALS

- **SIZE** 10, 12, 16
- **METRIC** M
- **STYLE** L Long body thruster with built-in repairable cylinder
- **BEARING** B Linear ball bearings; C Composite bushings
- **STROKE** (inches)
  - DLT-10 1-4 @ 1" increments
  - DLT-12 1-5 @ 1" increments
  - DLT-16 1-6 @ 1" increments
- **STROKE** (mm)
  - DLT-10M 25, 50, 80, 100
  - DLT-12M 25, 50, 80, 100, 125
  - DLT-16M 25, 50, 80, 100, 125, 150
- **VITON®** V Viton® seals
- **SHAFTING** S Corrosion resistant shafting

Custom strokes available. Please consult factory.

SAMPLE ORDER: DLT-10M-L-C-25-V

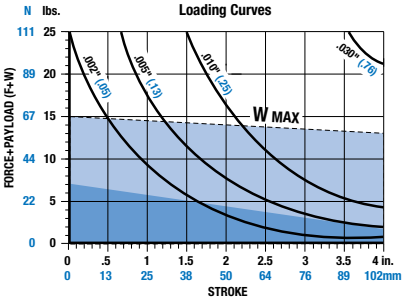
Ex: Thruster, Size 10 Metric, Long Body Style, Composite Bushings, 25mm Stroke, Viton® Seals

Accessories: (Order Separately)

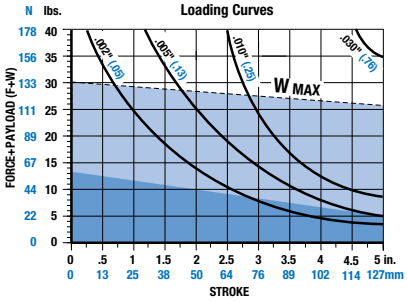
	DLT-10M	DLT-12M	DLT-16M	QTY/THRUSTER
SHOCK/STOP ACCESSORIES				
Universal Mounting Kit (Shock, Stop or Sensor)	OSAK-055	OSAK-057	OSAK-059	1, 2, 3 or 4
Urethane Bumper/Clamp Collar Kit	OSAK-056	OSAK-058	OSAK-060	1
Urethane Bumper/Clamp Collar Kit (-10M)	OSAK-065			1
Urethane Bumper/Clamp Collar Kit (-12M)		OSAK-066		1
Shock Absorber*	SHOK-028	SHOK-010	SHOK-010	1, 2, 3 or 4
Adjustable Hard Stop*	DLT-1023	DLT-1023	DLT-1023	1, 2, 3 or 4
INDUCTIVE SENSOR ACCESSORIES†				
Inductive Sensor PNP Qk. Disconnect*	OISP-011	OISP-011	OISP-011	1 or 2
Inductive Sensor NPN Qk. Disconnect*	OISN-011	OISN-011	OISN-011	1 or 2
Quick Disconnect 2M Cable Length †	CABL-010	CABL-010	CABL-010	1 or 2
Quick Disconnect 5M Cable Length †	CABL-013	CABL-013	CABL-013	1 or 2
MAGNETIC SENSOR ACCESSORIES† **				
Magneto Resistive Sensor PNP Qk. Disc.†	OHSP-017	OHSP-017	OHSP-017	1 or 2
Magneto Resistive Sensor NPN Qk. Disc.†	OHSN-017	OHSN-017	OHSN-017	1 or 2
Quick Disconnect 2M Cable Length †	CABL-010	CABL-010	CABL-010	1 or 2
Quick Disconnect 5M Cable Length †	CABL-013	CABL-013	CABL-013	1 or 2
PNEUMATIC ACCESSORIES				
1/8 NPT Telescopic Airlines (up to 3")	OTAL-038	OTAL-038	OTAL-038	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 6")	OTAL-039	OTAL-039	OTAL-039	1, 2, 3 or 4
#10-32 Adjustable Flow Control	VLVF-007	VLVF-007	VLVF-007	1 or 2
G1/8 Telescopic Airlines (up to 80mm)	OTAL-044	OTAL-044	OTAL-044	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 160mm)	OTAL-045	OTAL-045	OTAL-045	1, 2, 3 or 4
M5 Adjustable Flow Control	VLVF-008	VLVF-008	VLVF-008	1 or 2
Cylinder Seal Repair Kit	SLKT-100	SLKT-102	SLKT-102	1
Viton® Cylinder Seal Repair Kit	SLKT-100V	SLKT-102V	SLKT-102V	1

*Requires Universal Mounting Kit †Sensor and cable sold separately **Piston magnet standard

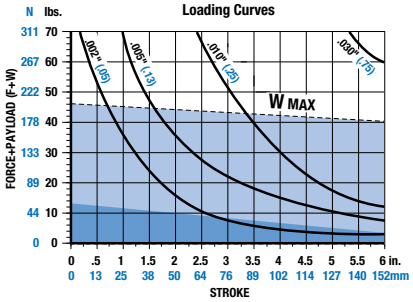
DLT-10M-L



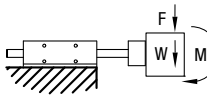
DLT-12M-L



DLT-16M-L



F=Externally applied force (lbs. or N)
W=Weight of payload (lbs. or N)
F+W=Total force (lbs. or N)



Shock Absorbers and Flow Controls are recommended for nearly all applications

(W) in this range use **Single Shock** in both directions

(W) in this range use **Urethane Bumpers**

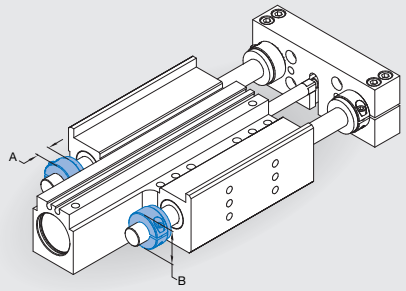
Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional accelera tion effect of gravity.

Specifications	DLT-10	DLT-10M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	35 lbs.	155 N
Weight (Basic Unit)	1.95 lbs.	0.88 kg
Additional Weight per Stroke	0.08 lbs./in.	1.4g/mm
Cylinder Bore Diameter	3/4"	19mm
Shaft Diameter	0.375"	9.5mm

Specifications	DLT-12	DLT-12M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	62 lbs.	275 N
Weight (Basic Unit)	3.21 lbs.	1.46 kg
Additional Weight per Stroke	0.12 lbs./in.	2.2g/mm
Cylinder Bore Diameter	1"	25mm
Shaft Diameter	0.472"	12mm

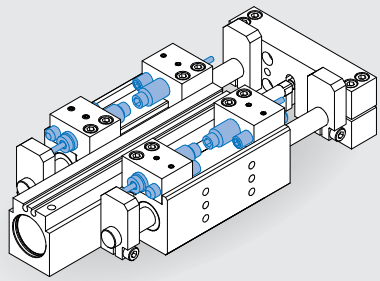
Specifications	DLT-16	DLT-16M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	62 lbs.	275 N
Weight (Basic Unit)	4.81 lbs.	2.03 kg
Additional Weight per Stroke	0.20 lbs./in.	3.5g/mm
Cylinder Bore Diameter	1"	25mm
Shaft Diameter	0.630"	16mm

Accessory Mounting Technical Data



Urethane Bumpers & Clamp Collars

- Urethane Bumpers for shock absorption and noise dampening
- Adjustable Clamp Collars for end of stroke position adjustment
- Kit contains (2) Collars and (2) Shock P ads for adjustment of travel in one direction
- (1) Kit required for extend (kit for retract comes standard)

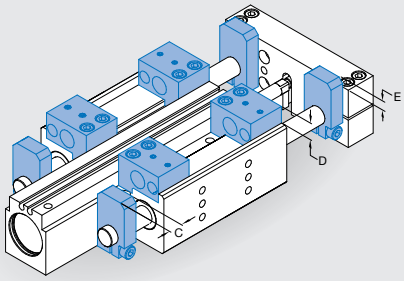


Adjustable Hard Stops

- For precision (+/-.001") end point positioning
- Allows for end stop position adjustment independent of shock absorber hard stop
- Allen wrench adjustable

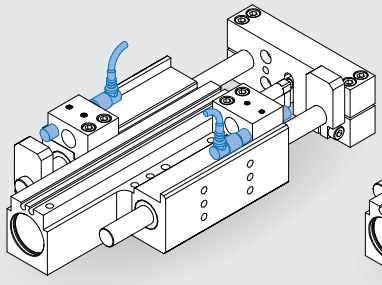
Shock Absorbers

- Full stroking piston rod
- Built-in hard stop
- Allen wrench adjustable



Universal Mounting Kit

- Kit mounts (1) Shock Absorber and (1) Inductive Proximity Sensor or (1) Shock and (1) Adjustable Hard Stop
- Kit includes (1) Mounting Bracket, (1) Hardened Tool Steel Target and Hardware
- Target allows for unlimited stroke adjustment. Fine adjustment is achieved using Adjustable Hard Stop or Shock Absorber
- Mounting Bracket keys into body for secure positioning and excellent rigidity
- Four possible mounting positions

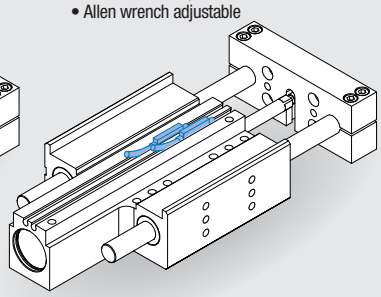


Inductive Proximity Sensors

- 8mm diameter
- Threaded quick disconnect with built-in LED output
- PNP and NPN available

Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

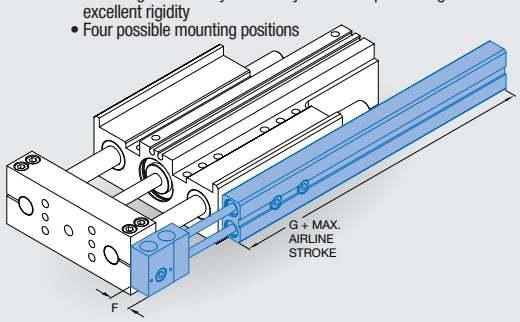


Magneto Resistive Sensors

- No mounting kit required (slot mounted)
- Threaded quick disconnect with built-in LED output
- PNP and NPN available
- Low profile

Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length



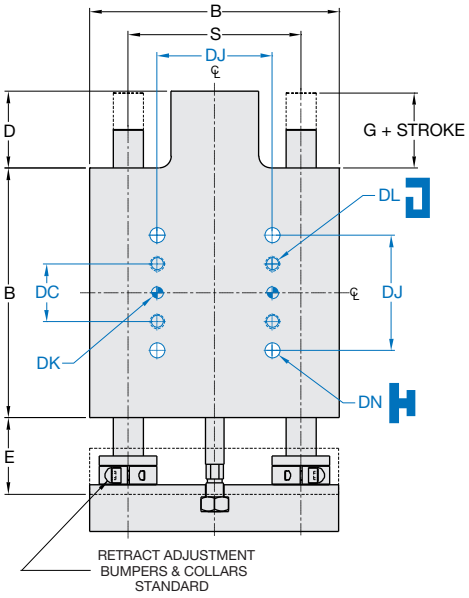
Telescoping Airlines

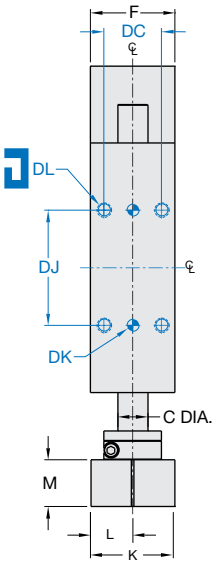
- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- 1/8 NPT or G1/8 pipe threads
- (2) user air ports per module

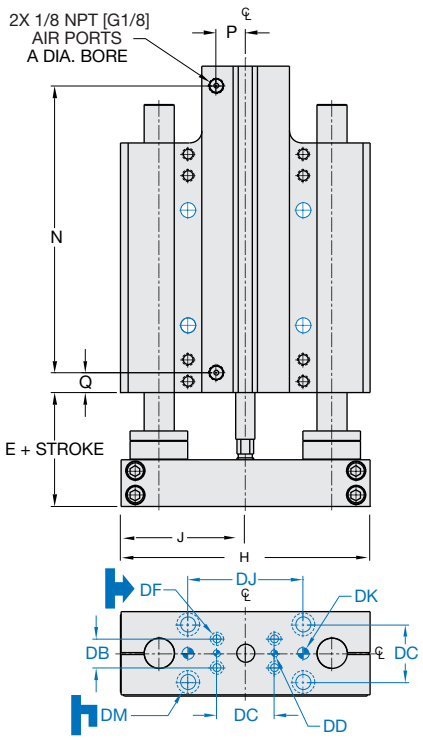
	A	B	C	D	E	F	G
DLT-10	.343"	.87	.375	.480	.320	.577	3.60
DLT-12	.375"	.95	.375	.450	.230	.577	3.60
DLT-16	.437"	1.31	.437	.450	.340	.577	3.60
DLT-10M	8.7mm	22.1	9.5	12.2	8.1	14.7	91.4
DLT-12M	9.5mm	23.9	9.5	11.4	5.8	14.7	91.4
DLT-16M	11.1mm	33.3	11.1	11.4	8.6	14.7	91.4

LONG BODY THRUSTER DLT -20M, 25M -L
BUILT-IN REPAIRABLE CYLINDER

Robohand







UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

- Dimensions are symmetrical about centerline
- Third Angle Projection
- All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
- Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

BASIC UNIT DIMENSIONS

(BORE DIA. / BODY SIZE / SHAFT DIA.)

MODEL #	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	S
DLT-20	1 1/2	6.50	.787	2.00	1.960	2.20	.960	6.480	3.230	2.180	1.080	1.210	7.469	.77	.52	4.500
DLT-25	1 1/2	7.50	.984	2.00	2.170	2.20	1.170	7.480	3.730	2.180	1.080	1.420	8.468	.77	.52	5.250
DLT-20M	38	165.1	20	50.8	49.8	55.9	24.4	164.6	82.0	55.4	27.4	30.7	189.7	19.4	13.1	114.30
DLT-25M	38	190.5	25	50.8	55.1	55.9	29.7	190.0	94.7	55.4	27.4	36.1	215.1	19.4	13.1	133.35

DIRECT CONNECT DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DB	.750	19.1
DC	1.500	38.1
DD	.1880 x .25DP	5mm H7 x 6DP
DF	Clearance for #10	Clearance for M5
DJ	3.000	76.2
DK	.3130 x .37 DP	8mm H7 x 9.4 DP
DL	3/8 -16 x .56 DP	M10 x 14.2 DP
DM	Clearance for 3/8	Clearance for M10
DN	Clearance for 3/8	Clearance for M10

How to Order: Basic Unit

BASIC MODEL | METRIC | STYLE | STROKE | SHAFTING

DLT - [ ] M - L - [ ] - [ ] - V - S

SIZE | BEARING | VITON® SEALS

SIZE **20, 25**

METRIC **M**

STYLE **L** Long body thruster with built-in repairable cylinder

BEARING **B** Linear ball bearings
C Composite bushings

STROKE (inches)
DLT-20 **1-6** @ 1" increments
DLT-25 **1-7** @ 1" increments

Custom strokes available. Please consult factory.

STROKE (mm)
DLT-20M **25, 50, 75, 100, 125, 160**
DLT-25M **25, 50, 75, 100, 125, 160, 175**

VITON® **V** Viton® seals

SHAFTING **S** Corrosion resistant shafting

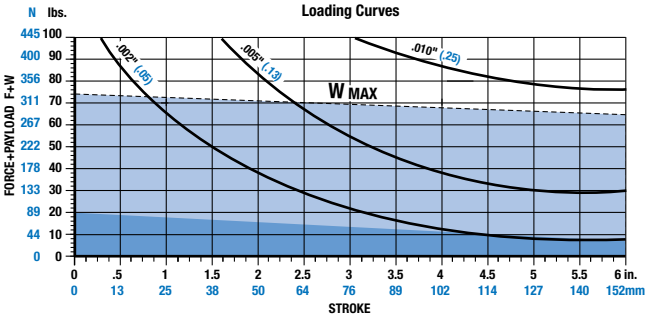
SAMPLE ORDER: DLT-20-L-B-2-V
Ex: Thruster, Size 20, Long Body Style, Linear Ball Bushings, 2 Inch Stroke, Viton® Seals

Accessories: (Order Separately)

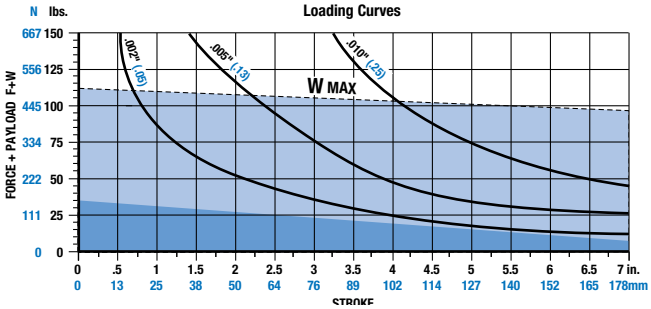
	DLT-20M	DLT-25M	QTY/THRUSTER
SHOCK/STOP ACCESSORIES			
Universal Mounting Kit (Shock, Stop or Sensor)	OSAK-061	OSAK-063	1, 2, 3 or 4
Urethane Bumper/Clamp Collar Kit	OSAK-062	OSAK-064	1
Shock Absorber (adjustable dampening)*	SHOK-029	SHOK-029	1, 2, 3 or 4
Adjustable Hard Stop*	DLT-1023	DLT-1023	1, 2, 3 or 4
INDUCTIVE SENSOR ACCESSORIES†			
Inductive Sensor PNP Qk. Disconnect*	OISP-011	OISP-011	1 or 2
Inductive Sensor NPN Qk. Disconnect*	OISN-011	OISN-011	1 or 2
Quick Disconnect 2M Cable Length †	CABL-010	CABL-010	1 or 2
Quick Disconnect 5M Cable Length †	CABL-013	CABL-013	1 or 2
MAGNETIC SENSOR ACCESSORIES† **			
Magneto Resistive Sensor PNP Qk. Disc.†	OHSP-017	OHSP-017	1 or 2
Magneto Resistive Sensor NPN Qk. Disc.†	OHSN-017	OHSN-017	1 or 2
Quick Disconnect 2M Cable Length †	CABL-010	CABL-010	1 or 2
Quick Disconnect 5M Cable Length †	CABL-013	CABL-013	1 or 2
PNEUMATIC ACCESSORIES			
1/8 NPT Telescopic Airlines (up to 6")	OTAL-039	OTAL-039	1, 2,3 or 4
1/8 NPT Telescopic Airlines (up to 12")	OTAL-040	OTAL-040	1, 2,3 or 4
1/8 NPT Adjustable Flow Control	VLVF-004	VLVF-004	1 or 2
G1/8 Telescopic Airlines (up to 160mm)	OTAL-045	OTAL-045	1, 2,3 or 4
G1/8 Telescopic Airlines (up to 300mm)	OTAL-046	OTAL-046	1, 2,3 or 4
G1/8 Adjustable Flow Control	VLVF-005	VLVF-005	1 or 2
Cylinder Seal Repair Kit	SLKT-104	SLKT-104	1
Viton® Cylinder Seal Repair Kit	SLKT-104V	SLKT-104V	1

*Requires Universal Mounting Kit †Sensor and cable sold separately **Piston magnet standard

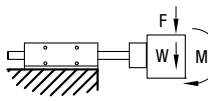
DLT-20M-L



DLT-25M-L



F=Externally applied force (lbs. or N)
W=Weight of payload (lbs. or N)
F+W=Total force (lbs. or N)



Shock Absorbers and Flow Controls are recommended for nearly all applications

(**W**) in this range use **Single Shock** in both directions

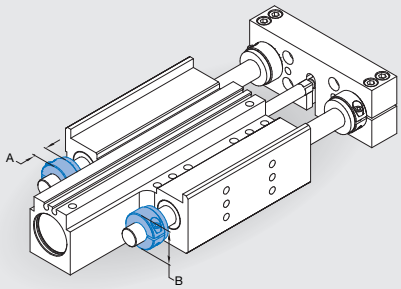
(**W**) in this range use **Urethane Bumpers**

Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional accelera tion effect of gravity.

Specifications	DLT-20	DLT-20M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	140 lbs.	622 N
Weight (Basic Unit)	12.0 lbs.	5.5 kg
Additional Weight per Stroke	0.31 lbs./in.	5.5g/mm
Cylinder Bore Diameter	1-1/2"	38mm
Shaft Diameter	0.787"	20mm

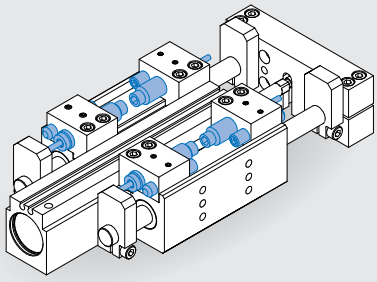
Specifications	DLT-25	DLT-25M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	140 lbs.	622 N
Weight (Basic Unit)	17.4 lbs.	7.9 kg
Additional Weight per Stroke	0.47 lbs./in.	8.4g/mm
Cylinder Bore Diameter	1-1/2"	38mm
Shaft Diameter	0.984"	25mm

Accessory Mounting Technical Data



Urethane Bumpers & Clamp Collars

- Urethane Bumpers for shock absorption and noise dampening
- Adjustable Clamp Collars for end of stroke position adjustment
- Kit contains (2) Collars and (2) Shock P ads for adjustment of travel in one direction
- (1) Kit required for retract (kit for extend standard)

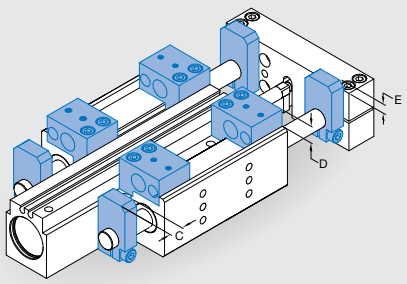


Adjustable Hard Stops

- For precision (+/-.001") end point positioning
- Allows for end stop position adjustment independent of shock absorber hard stop
- Allen wrench adjustable

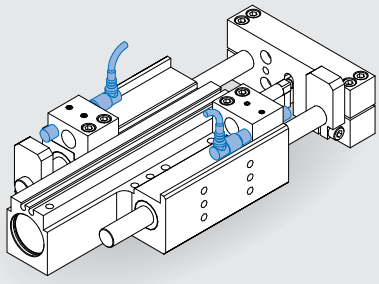
Shock Absorbers

- Full stroking piston rod
- Built-in hard stop
- Position adjustable
- Adjustable dampening



Universal Mounting Kit

- Kit mounts (1) Shock Absorber and (1) Inductive Proximity Sensor or (1) Shock and (1) Adjustable Hard Stop
- Kit includes Mounting Bracket, Hardened Tool Steel Target and Hardware
- Target allows for unlimited stroke adjustment. Fine adjustment is achieved using Adjustable Hard Stop or Shock Absorber
- Mounting Bracket keys into bod y for secure positioning and excellent rigidity
- Four possible mounting positions

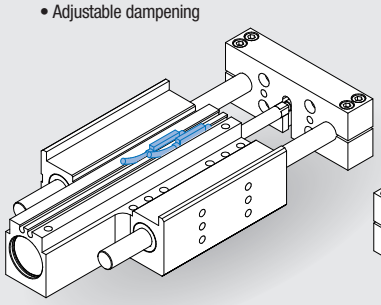


Inductive Proximity Sensors

- 8mm diameter
- Threaded quick disconnect with built-in LED output
- PNP and NPN a vailable

Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

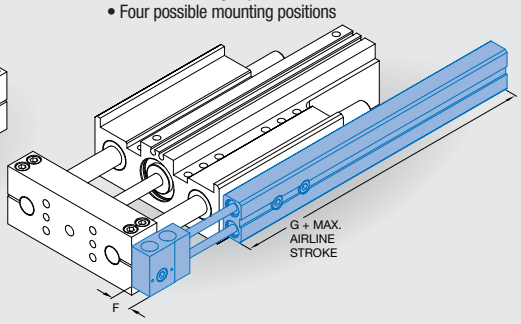


Magneto Resistive Sensors

- No mounting kit required
- Threaded quick disconnect with built-in LED output
- PNP and NPN a vailable
- Low profile

Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

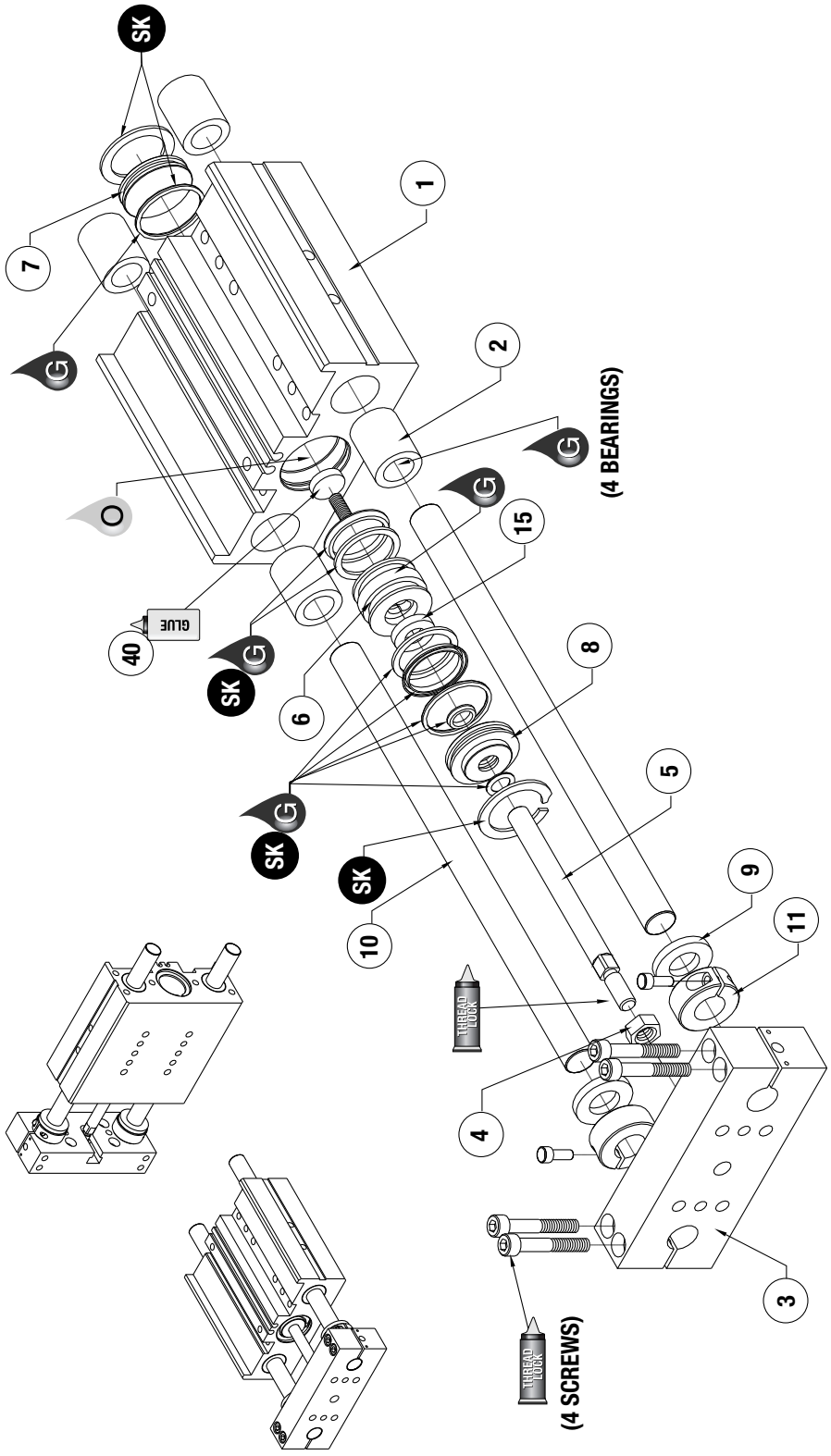


Telescoping Airlines

- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- 1/8 NPT or G1/8 pipe threads
- (2) user air ports per module

	A	B	C	D	E	F	G
DLT-20	.500"	1.50	.500	.92	.67	.577	3.60
DLT-25	.500"	1.75	.500	.92	.67	.577	3.60
DLT-20M	12.7mm	38.1	12.7	23.4	17.0	14.7	91.4
DLT-25M	12.7mm	44.5	12.7	23.4	17.0	14.7	91.4

DLT-B, E, L Series Exploded View



Item	Qty	Name
01	1	Body
02	4	Bushing
03	1	Tooling Plate
04	1	Nut, Stover
05	1	Piston Rod
06	1	Piston
07	1	Cap, Plug End
08	1	Cap, Rod End
09	2	Shock Pad,Urethane
10	1	Guide Shaft
11	2	Collar, Split
15	1	Shock Pad, Urethane
40	1	Magnet

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedure

1) Lubricate and install seals.
2) Attach piston to piston shaft.
3) Install magnet on piston.
4) Install plug endcap and retaining ring into body.
5) Attach piston, piston shaft, and rod end cap to body and install retainer ring.
6) Install bearings and shafts into bod y.
7) Attach shock pads and clamp collars to rod end of shafts.
8) Install tool plate on rod end of shafts, and attach cylinder rod to plate.
9) Adjust clamp collars and fasten them in desired position.

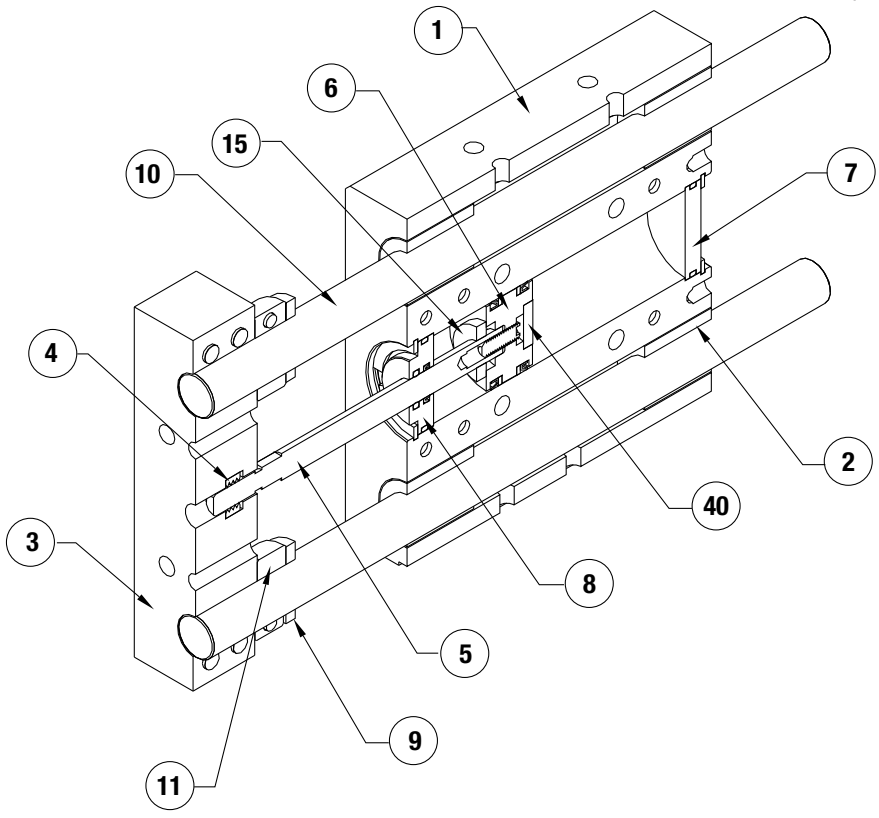
SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

Item	Qty	Name
01	1	Body
02	4	Bushing
03	1	Tooling Plate
04	1	Nut, Stover
05	1	Piston Rod
06	1	Piston
07	1	Cap, Plug End
08	1	Cap, Rod End
09	2	Shock Pad,Urethane
10	1	Guide Shaft
11	2	Collar, Split
15	1	Shock Pad, Urethane
40	1	Magnet

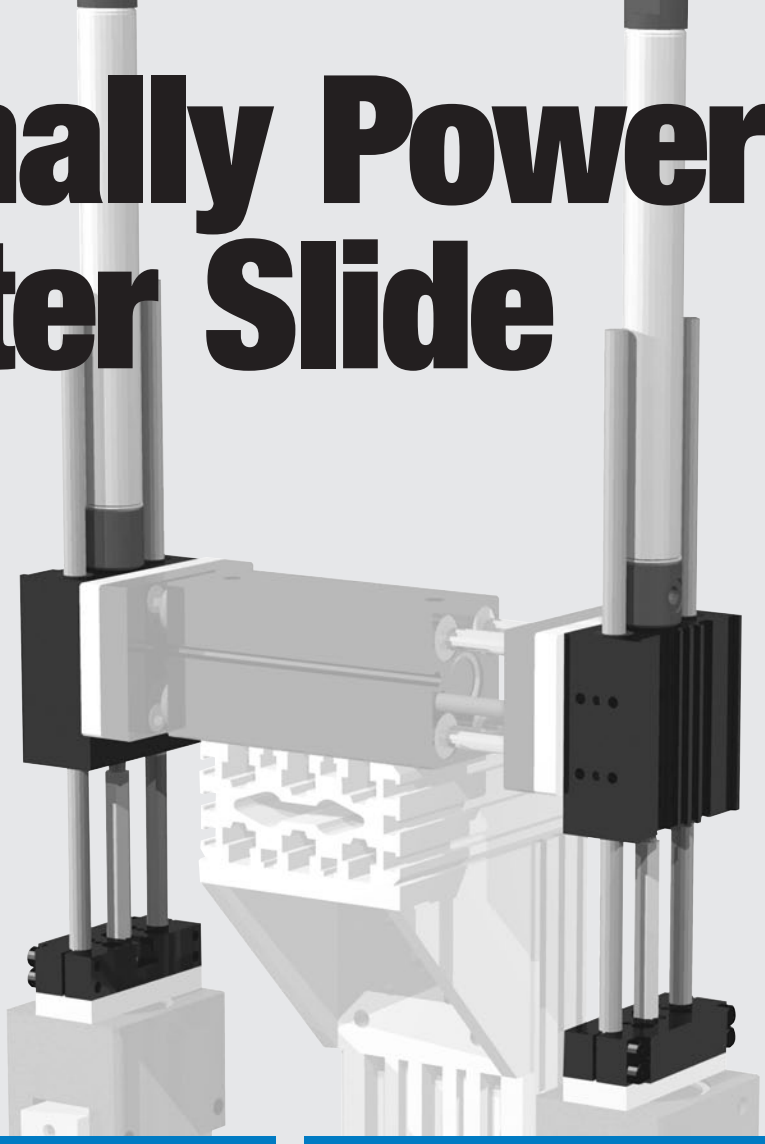
NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

NOTE: For accessory mounting, see product data sheets



SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

Externally Powered Thruster Slide

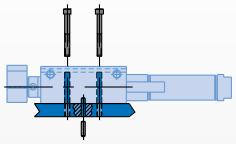


Cylinder options:
Externally powered thruster slides are available in a wide range of cylinder options. Choose from replaceable/disposable, replaceable with adjustable cushions, NFPA with adjustable cushions, ISO/metric, VDMA, Locking VDNA, or non-powered for customer supplied cylinders.

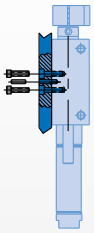
DIRECTCONNECT mounting patterns:
These slides have DIRECTCONNECT mounting patterns that connect to other slides without the need for adapter plates.

Mounting Information:

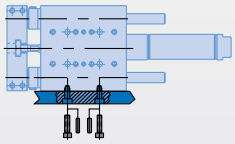
Mounts and operates in any orientation



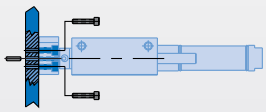
Body can be back mounted with screws from the front using the clearance and counterbored DIRECTCONNECT pattern and located with dowel holes.



Body can be mounted from the back using the DIRECTCONNECT pattern of threaded mounting and dowel pin holes.



Body mounts with screws and locate with slip fit dowel pin holes on side using DIRECTCONNECT mounting patterns.



Payload attaches to tooling plate DIRECTCONNECT mounting pattern with screws and locates using slip fit dowel pin holes.

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range*	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary****
Air Humidity	**Low Moisture Content (dry)**

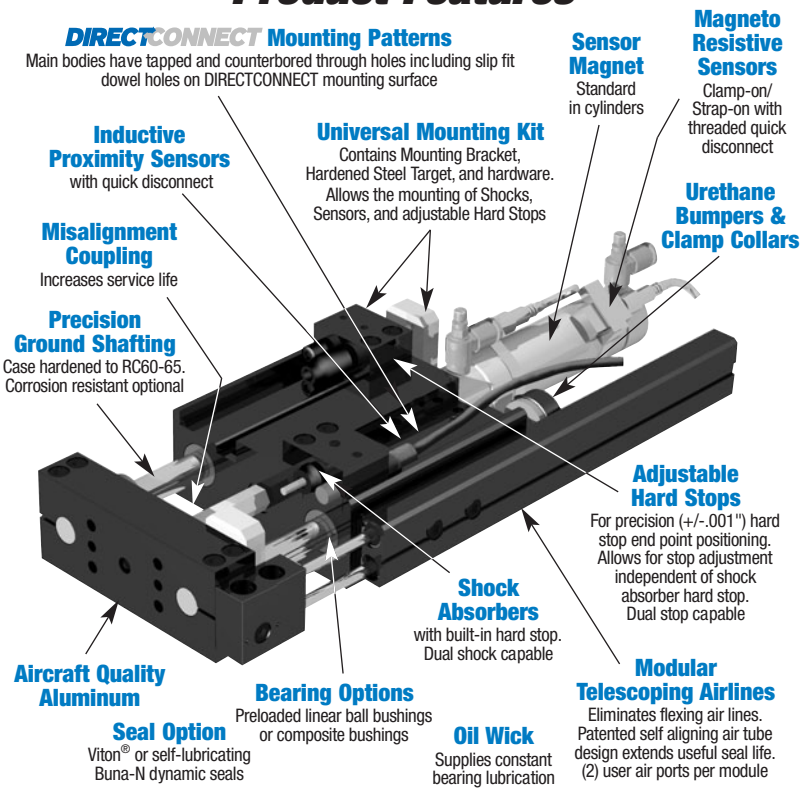
Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~300° F**	**-30°~150° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles**†
Field Repairable	**No**
Seal Repair Kits Available	**No**

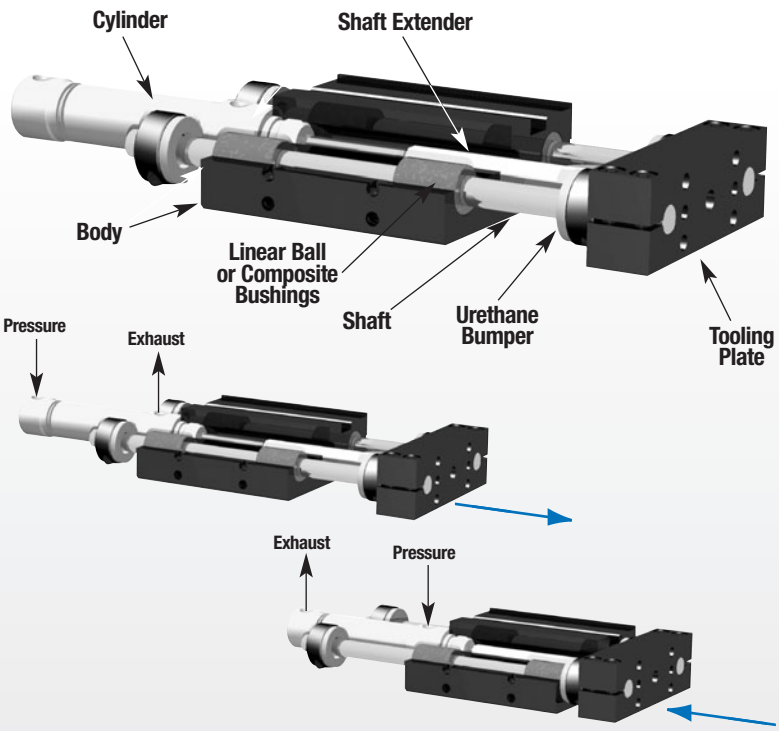
Application Restrictions
Flow controls, shock absorbers and urethane bumpers recommended for nearly all applications.
Use composite bushing in dirty or gritty environments.
Never use silicone based lubricants with composite bushings.

*Higher pressure possible. Consult factory with application details.
**Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features



Operating Principle



- A double acting cylinder drives a shaft extender that connects to the tooling plate with a misalignment coupling.
- The tooling plate is attached to two hardened steel shafts which are supported by and move in four linear bushings located in the body.

Designed and manufactured in the USA

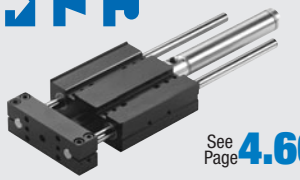
Style -T, U Replaceable Cyl.

Size **-06M** -T, U only
-08M -T, U only

See Page 4.58

Style -T, A Replaceable Cyl.

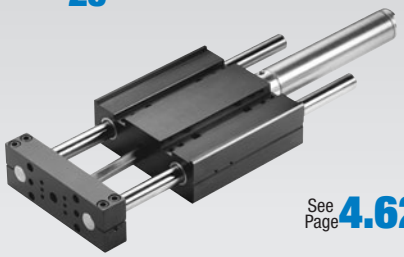
-10M (Metric -A only) (shown)
-12M (Metric -A only)
-16M (Metric -A only)



See Page 4.60

Style -T, A Replaceable Cyl.

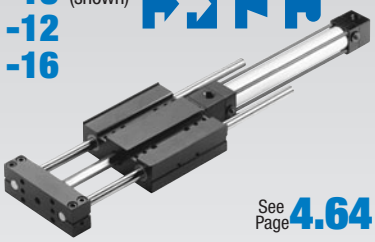
Size **-20** (shown)
-25



See Page 4.62

Style -N, U Repairable Cyl.

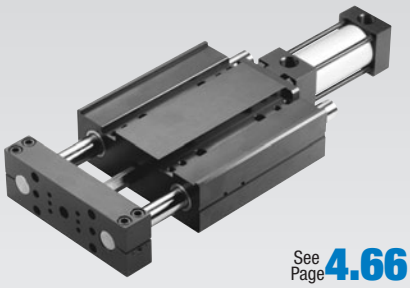
Size **-10** (shown)
-12
-16



See Page 4.64

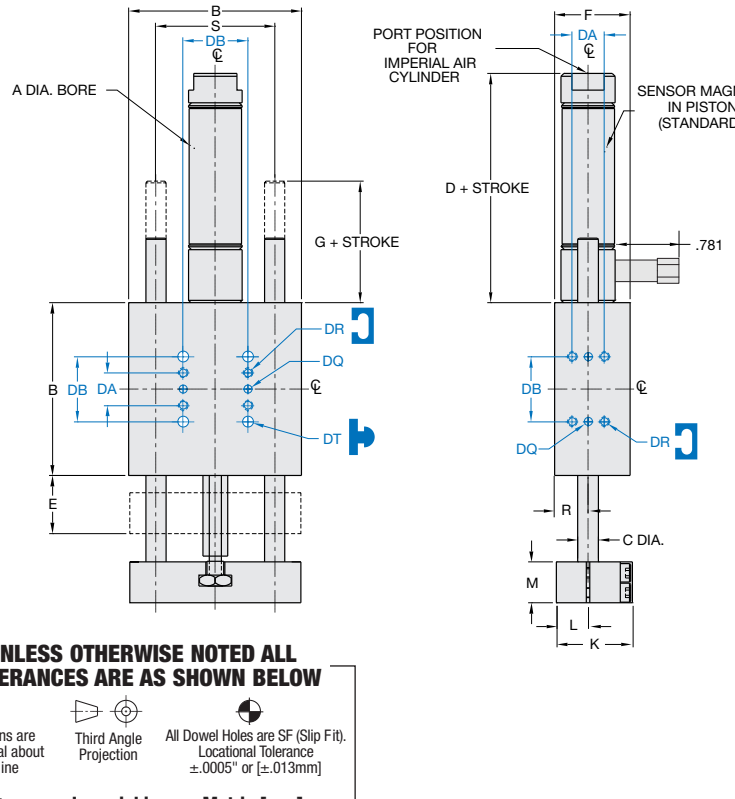
Style -N, R, U Repairable Cyl.

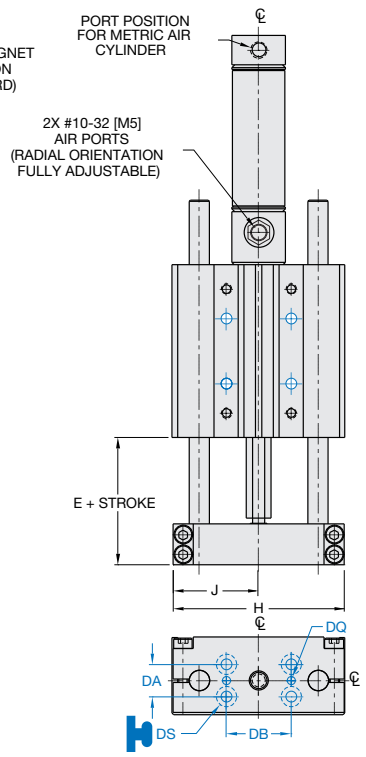
Size **-20M** (shown)
-25M



See Page 4.66

LINEAR THRUSTER DLT -06M, 08M -T, U
REPLACEABLE CYLINDER





UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	**Imperial in.** 0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	**Metric [mm]** [0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

BASIC UNIT DIMENSIONS

(BORE DIA. / BODY SIZE / SHAFT DIA.)

MODEL #	A	B	C	D	E	F	G	H	J	K	L	M	R	S
DLT-06	0.563	2.00	0.236	2.16	0.783	0.88	0.66	1.980	.990	0.875	.365	0.470	.390	1.375
DLT-08	0.563	2.50	0.315	2.16	0.783	0.88	0.41	2.470	1.235	0.875	.365	0.470	.390	1.750
DLT-06M	16	50.8	6.0	54.9	19.9	22.4	16.7	50.3	25.1	22.2	9.3	11.9	9.9	34.93
DLT-08M	16	64.0	8.0	54.9	19.9	22.4	10.4	62.7	31.4	22.2	9.3	11.9	9.9	44.45

DIRECTCONNECT DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DA	.375	9.5
DB	.750	19.1
DQ	.0940 x .078 DP	3H7 x 2 DP
DR	#4-40 x .25 DP	M3 x 6 DP
DS	Clr & C'bore for #4	Clr & C'bore for M3
DT	Clr & C'bore for #4	Clr & C'bore for M3

How to Order: Basic Unit

BASIC MODEL | METRIC | STYLE | STROKE

DLT - [ ] M - [ ] - C - [ ] - S

SIZE | BEARING | SHAFTING

SIZE **06, 08**

Oversized guide shafts available. Please consult factory.

METRIC **M**

STYLE **T** Replaceable cylinder
U Non-powered unit (Without cylinder. Directly mounts replaceable style cylinders)

BEARING **C** Composite bushings

STROKE (inches)
DLT-06 **.5, 1, 1.5, 2, 2.5, 3, 4, 5, 6**
DLT-08 **.5, 1, 1.5, 2, 2.5, 3, 4, 5, 6, 7, 8**

Custom strokes available. Please consult factory.

STROKE (mm)
DLT-06M **10, 25, 40, 50, 75, 100, 125, 160**
DLT-08M **10, 25, 40, 50, 75, 100, 125, 160, 175, 200**

SHAFTING **S** Corrosion resistant shafting

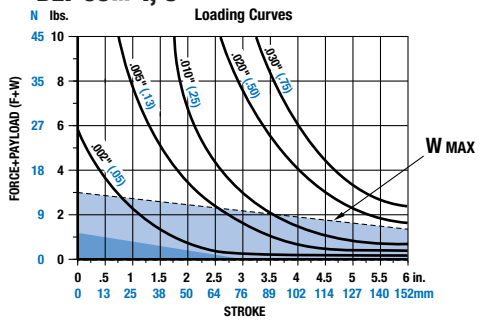
SAMPLE ORDER: DLT-08M-T-B-25
Ex: Thruster, Size 8 Metric, Replaceable Cylinder, Linear Ball Bushings, 25mm Stroke

Accessories: (Order Separately)

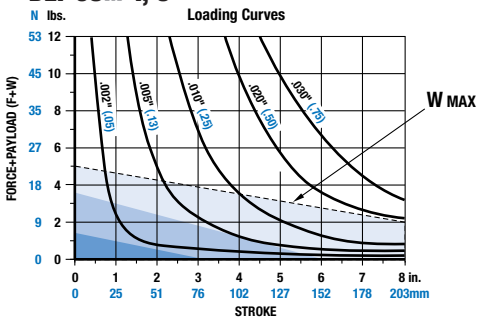
	DLT-06M	DLT-08M	QTY/THRUSTER
SHOCK/STOP ACCESSORIES			
Universal Mounting Kit (Shock or Stop)	OSAK-069	OSAK-070	1, 2, 3, or 4
Shock Absorber (2 Max. on -06)*	SHOK-030	SHOK-030	1, 2, 3, or 4
Adjustable Hard Stop*	DLT-0623	DLT-0623	1, 2, 3, or 4
Urethane Bumper/Stop Collar Kit	OSAK-067	OSAK-068	1 or 2
INDUCTIVE SENSOR ACCESSORIES†			
Inductive Sensor Mounting Kit	OSMK-076	OSMK-077	1
Inductive Sensor PNP Qk. Disconnect †	OISP-014	OISP-014	1
Inductive Sensor NPN Qk. Disconnect †	OISN-014	OISN-014	1
Quick. Disconnect 2M Cable Length †	CABL-010	CABL-010	1
Quick. Disconnect 5M Cable Length †	CABL-013	CABL-013	1
MAGNETIC SENSOR ACCESSORIES**			
Magneto Resistive Sensor PNP Qk. Disc. †	OHSP-005	OHSP-005	1 or 2
Magneto Resistive Sensor NPN Qk. Disc. †	OHSN-005	OHSN-005	1 or 2
Quick. Disconnect 2M Cable Length †	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length †	CABL-013	CABL-013	1 or 2
PNEUMATIC ACCESSORIES			
#10-32 Adjustable Flow Control (Imperial)††	VLVF-007	VLVF-007	1 or 2
M5 Adjustable Flow Control (Metric)††	VLVF-008	VLVF-008	1 or 2
#10-32 Retract Port Standoff (Imperial)	PLFT-070	PLFT-070	1
M5 Retract Port Standoff (Metric)	PLFT-071	PLFT-071	1

†Sensor and cable sold separately *Piston magnet standard ††Requires Port Standoff

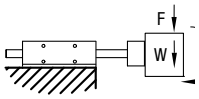
DLT-06M-T, U



DLT-08M-T, U



F=Externally applied force (lbs. or N)
W=Weight of payload (lbs. or N)
F+**W**=Total deflection force (lbs. or N)
M=Maximum moment (in.-lb. or N-m)



Shock Absorbers and Flow Controls are recommended for nearly all applications

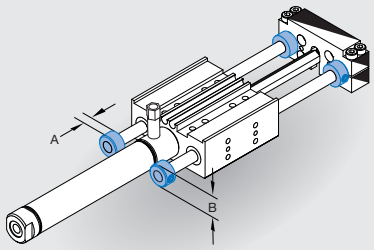
Use **Double Shocks** in both directions | Use **Single Shock** in both directions | Use **Bumpers or Cushioned Cylinder**

Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional accelera tion effect of gravity.

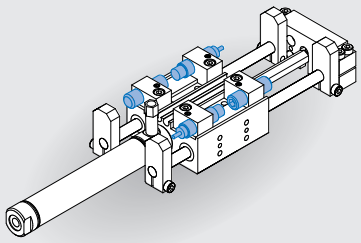
Specifications	DLT-06	DLT-06M
Maximum Air Pressure	100 psi	7 bar
Thrust Force @ 80psi/5.5 bar	20 lbs.	111 N
Weight (Basic Unit)	0.53 lbs.	0.24 kg
Additional Weight Per Stroke	0.05 lb/in	0.88 g/mm
Cylinder Bore Diameter	0.563"	16 mm
Shaft Diameter	0.236"	6 mm
Max (**M**) Vertical Motion	5 in.-lbs.	0.6 N-m

Specifications	DLT-08	DLT-08M
Maximum Air Pressure	100 psi	7 bar
Thrust Force @ 80psi/ 5.5 bar	20 lbs.	89 N
Weight (Basic Unit)	0.88 lbs.	0.40 kg
Additional Weight Per Stroke	0.07 lb/in	1.43 g/mm
Cylinder Bore Diameter	0.563"	16 mm
Shaft Diameter	0.315"	8.0 mm
Max (**M**) Vertical Motion	10 in.-lbs.	1.3 N-m

Accessory Mounting Technical Data

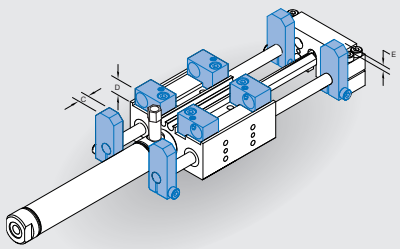


Urethane Bumpers & Clamp Collars
- Urethane Bumpers for shock absorption and noise dampening
- Adjustable Clamp Collars for end of stroke position adjustment
- Kit contains (2) Collars and (2) Shock P ads for adjustment of travel in one direction

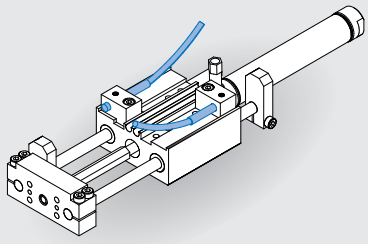


Adjustable Hard Stops
- For precision (+/-.001") end point positioning of retract position
- Allows for end stop position adjustment independent of shock absorber hard stop
- Allen wrench adjustable

Shock Absorbers
- Full stroking piston rod
- Built-in hard stop
- Position adjustable

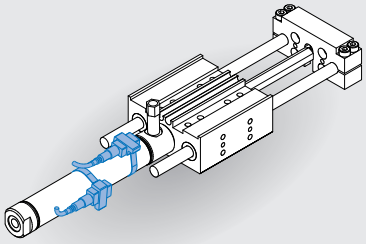


Universal Mounting Kit
- Kit mounts (1) Shock Absorber or (1) Adjustable Hard Stop
- Kit includes (1) Mounting Bracket, (1) Hardened Tool Steel Target and Hardware
- Target allows for unlimited retract stroke adjustment (no extend position adjustment). Fine adjustment is achieved using Adjustable Hard Stop or Shock Absorber
- Mounting Bracket keys into body for secure positioning and excellent rigidity
- Four possible mounting positions



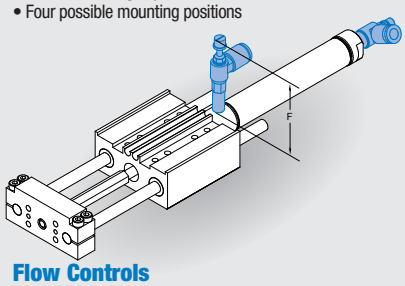
Inductive Proximity Sensors
- 4mm diameter
- Threaded quick disconnect with built-in LED output
- PNP and NPN a vailable

Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length



Magneto Resistive Sensors
- No mounting kit required (slot mounted)
- Threaded quick disconnect with built-in LED output
- PNP and NPN a vailable
- Low profile

Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

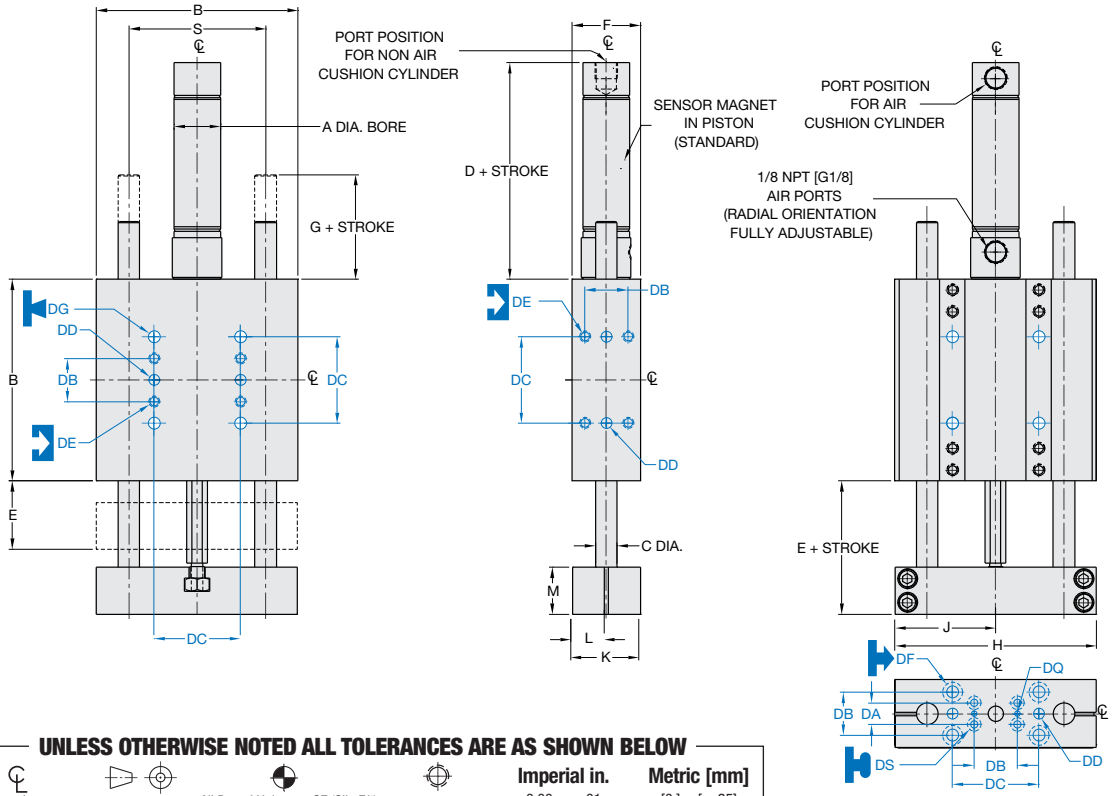


Flow Controls
- Thumb screw adjust with locking nut for adjusting cylinder speed
- 1/8 NPT or G1/8 pipe threads

	A	B	C	D	E	F
DLT-06	.236"	.47	.250	.31	.27	1.82
DLT-08	.236"	.63	.250	.31	.27	1.82
DLT-06M	6 mm	12.0	6.4	7.9	6.9	46.2
DLT-08M	6 mm	16.0	6.4	7.9	6.9	46.2

LINEAR THRUSTER DLT -10M, 12M, 16M -T, A
REPLACEABLE CYLINDER WITH OR W/O ADJ. AIR CUSHIONS

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

BASIC UNIT DIMENSIONS

MODEL #	A (BORE DIA.)	B (BODY SIZE)	C (SHAFT DIA.)	D	E	F	G	H	J	K	L	M	S
DLT-10	3/4	3.50	.375	2.91	1.313	1.19	.82	3.490	1.740	1.178	.584	.813	2.375
DLT-12	1 1/16	4.00	.472	2.88	1.313	1.63	.82	3.985	1.985	1.615	.802	.813	2.750
DLT-16	1 1/16	4.75	.630	2.88	1.375	1.63	.76	4.735	2.360	1.615	.802	.813	3.250
DLT-10M	20	88.9	9.5	88.0	33.4	30.2	20.8	88.6	44.2	29.9	14.8	20.7	60.33
DLT-12M	25	101.6	12.0	91.5	33.4	41.4	20.8	101.2	50.4	41.0	20.4	20.7	69.85
DLT-16M	25	120.7	16.0	91.5	34.9	41.4	19.3	120.3	59.9	41.0	20.4	20.7	82.55

DIRECT CONNECT DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DA	.375	9.5
DB	.750	19.1
DC	1.500	38.1
DD	.1880 X .25 DP	5 mm H7 X 6 DP
DE	#10-32 X .34 DP	M5 X 8.5 DP
DF	Clr & C'bore for #10	Clr & C'bore for M5
DG	Clr & C'bore for #10	Clr & C'bore for M5
DQ	.0940 x .078 DP	3H7 x 2 DP
DS	Clr & C'bore for #4	Clr & C'bore for M3

How to Order: Basic Unit

BASIC MODEL | METRIC | STYLE | STROKE

DLT - [ ] **M** - [ ] - [ ] - [ ] - **S**

SIZE | BEARING | SHAFTING

SIZE **10, 12, 16**

Oversized guide shafts available. Please consult factory.

METRIC **M**

STYLE **T** Replaceable cylinder w/o adjustable air cushions (Not avail. in metric)
A Replaceable cylinder with adjustable air cushions

BEARING **B** Linear ball bearings
C Composite bushings

STROKE (inches)
DLT-10 **1-12** @ 1" increments
DLT-12 **1-16** @ 1" increments
DLT-16 **1-20** @ 1" increments

Custom strokes available. Please consult factory.

STROKE (mm)
DLT-10M **25, 50, 80, 100, 125, 160, 200, 250, 300**
DLT-12M **25, 50, 80, 100, 125, 160, 200, 250, 300, 320, 360, 400**
DLT-16M **25, 50, 80, 100, 125, 160, 200, 250, 300, 320, 360, 400, 500**

SHAFTING **S** Corrosion resistant shafting

SAMPLE ORDER: DLT-10M-A-B-25

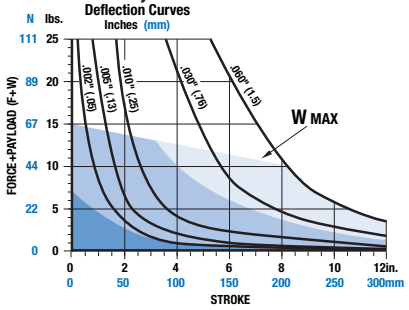
Ex: Thruster, Size 10 Metric, Replaceable Cylinder w/Adjustable Air Cushions, Linear Ball Bushings, 25mm Stroke

Accessories: (Order Separately)

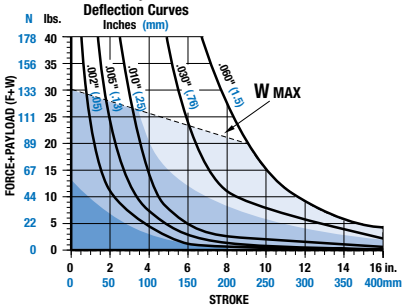
	DLT-10M	DLT-12M	DLT-16M	QTY/THRUSTER
SHOCK/STOP ACCESSORIES				
Universal Mounting Kit (Shock, Stop or Sensor)	OSAK-055	OSAK-057	OSAK-059	1, 2, 3 or 4
Urethane Bumper/Clamp Collar Kit	OSAK-056	OSAK-058	OSAK-060	1 or 2
Urethane Bumper/Clamp Collar Kit (-10M)	OSAK-065			1 or 2
Urethane Bumper/Clamp Collar Kit (-12M)		OSAK-066		1 or 2
Shock Absorber*	SHOK-028	SHOK-010	SHOK-010	1, 2, 3 or 4
Adjustable Hard Stop*	DLT-1023	DLT-1023	DLT-1023	1, 2, 3 or 4
INDUCTIVE SENSOR ACCESSORIES†				
Inductive Sensor PNP Qk. Disconnect*	OISP-011	OISP-011	OISP-011	1 or 2
Inductive Sensor NPN Qk. Disconnect*	OISN-011	OISN-011	OISN-011	1 or 2
Quick. Disconnect 2M Cable Length †	CABL-010	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length †	CABL-013	CABL-013	CABL-013	1 or 2
MAGNETIC SENSOR ACCESSORIES† **				
Magneto Resistive Sensor PNP Qk. Disc.†	OHSP-005	OHSP-005	OHSP-005	1 or 2
Magneto Resistive Sensor NPN Qk. Disc.†	OHSN-005	OHSN-005	OHSN-005	1 or 2
Quick. Disconnect 2M Cable Length †	CABL-010	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length †	CABL-013	CABL-013	CABL-013	1 or 2
PNEUMATIC ACCESSORIES				
1/8 NPT Telescopic Airlines (up to 6")	OTAL-039	OTAL-039	OTAL-039	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 12")	OTAL-040	OTAL-040	OTAL-040	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 18")	OTAL-041	OTAL-041	OTAL-041	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 24")	OTAL-042	OTAL-042	OTAL-042	1, 2, 3 or 4
1/8 NPT Adjustable Flow Control	VLVF-004	VLVF-004	VLVF-004	1 or 2
G1/8 Telescopic Airlines (up to 160mm)	OTAL-045	OTAL-045	OTAL-045	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 300mm)	OTAL-046	OTAL-046	OTAL-046	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 450mm)	OTAL-047	OTAL-047	OTAL-047	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 600mm)	OTAL-048	OTAL-048	OTAL-048	1, 2, 3 or 4
G1/8 Adjustable Flow Control	VLVF-005	VLVF-005	VLVF-005	1 or 2

*Requires Universal Mounting Kit †Sensor and cable sold separately **Piston magnet standard

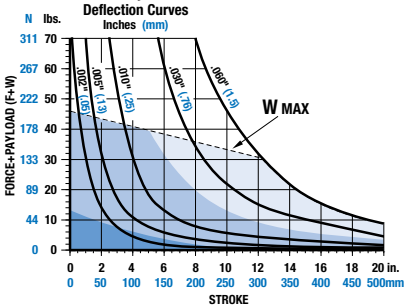
DLT-10M-T,A



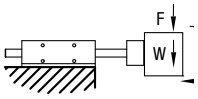
DLT-12M-T,A



DLT-16M-T,A



F=Externally applied force (lbs. or N)
W=Weight of payload (lbs. or N)
F+**W**=Total deflection force (lbs. or N)



Shock Absorbers and Flow Controls are recommended for nearly all applications

Use **Double Shocks** in both directions | Use **Single Shock** in both directions | Use **Bumpers or Cushioned Cylinder**

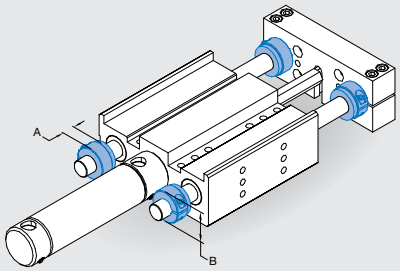
Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional accelera tion effect of gravity.

Specifications	DLT-10	DLT-10M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	35 lbs.	173 N
Weight (Basic Unit **-T**, **-A**)	2.12 lbs.	1.05 kg
Additional Weight per Stroke	0.09 lbs./in.	1.2g/mm
Cylinder Bore Diameter	3/4"	20mm
Shaft Diameter	0.375"	9.5mm

Specifications	DLT-12	DLT-12M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	70 lbs.	270 N
Weight (Basic Unit **-T**, **-A**)	3.42 lbs.	1.64 kg
Additional Weight per Stroke	0.15 lbs./in.	2.9g/mm
Cylinder Bore Diameter	1-1/16"	25mm
Shaft Diameter	0.472"	12mm

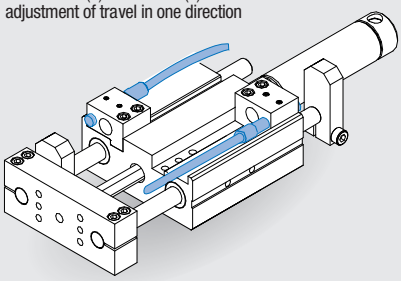
Specifications	DLT-16	DLT-16M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	70 lbs.	270 N
Weight (Basic Unit **-T**, **-A**)	4.47 lbs.	2.11 kg
Additional Weight per Stroke	0.23 lbs./in.	4.2g/mm
Cylinder Bore Diameter	1-1/16"	25mm
Shaft Diameter	0.630"	16mm

Accessory Mounting Technical Data



Urethane Bumpers & Clamp Collars

- Urethane Bumpers for shock absorption and noise dampening
- Adjustable Clamp Collars for end of stroke position adjustment
- Kit contains (2) Collars and (2) Shock P ads for adjustment of travel in one direction

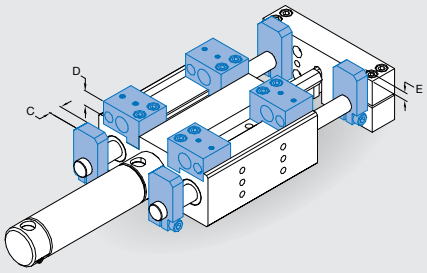


Inductive Proximity Sensors

- 8mm diameter
- Threaded Quick Disconnect with built-in LED output
- PNP and NPN a vailable

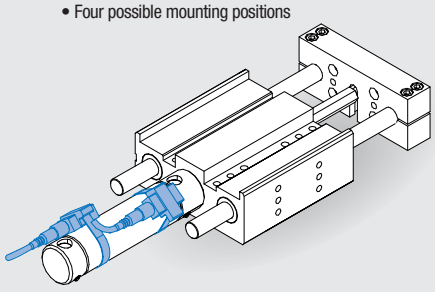
Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length



Universal Mounting Kit

- Kit mounts (1) Shock Absorber and (1) Inductive Proximity Sensor or (1) Shock and (1) Adjustable Hard Stop
- Kit includes (1) Mounting Bracket, (1) Hardened Tool Steel Target and Hardware
- Target allows for unlimited stroke adjustment. Fine adjustment is achieved using Adjustable Hard Stop or Shock Absorber
- Mounting Bracket keys into bod y for secure positioning and excellent rigidity
- Four possible mounting positions

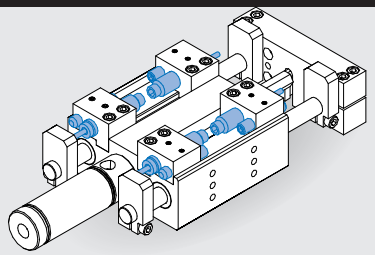


Magneto Resistive Sensors

- Quick Disconnect with built-in LED output
- Strap-on Mounting Kit included
- PNP and NPN a vailable

Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

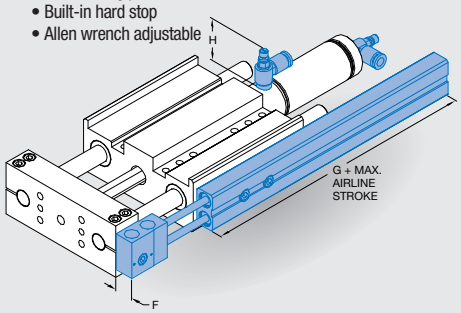


Adjustable Hard Stops

- For precision (+/-.001") end point positioning
- Allows for end stop position adjustment independent of shock absorber hard stop
- Allen wrench adjustable

Shock Absorbers

- Full stroking piston rod
- Built-in hard stop
- Allen wrench adjustable



Telescoping Airlines

- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- 1/8 NPT or G1/8 pipe threads
- (2) user air ports per module

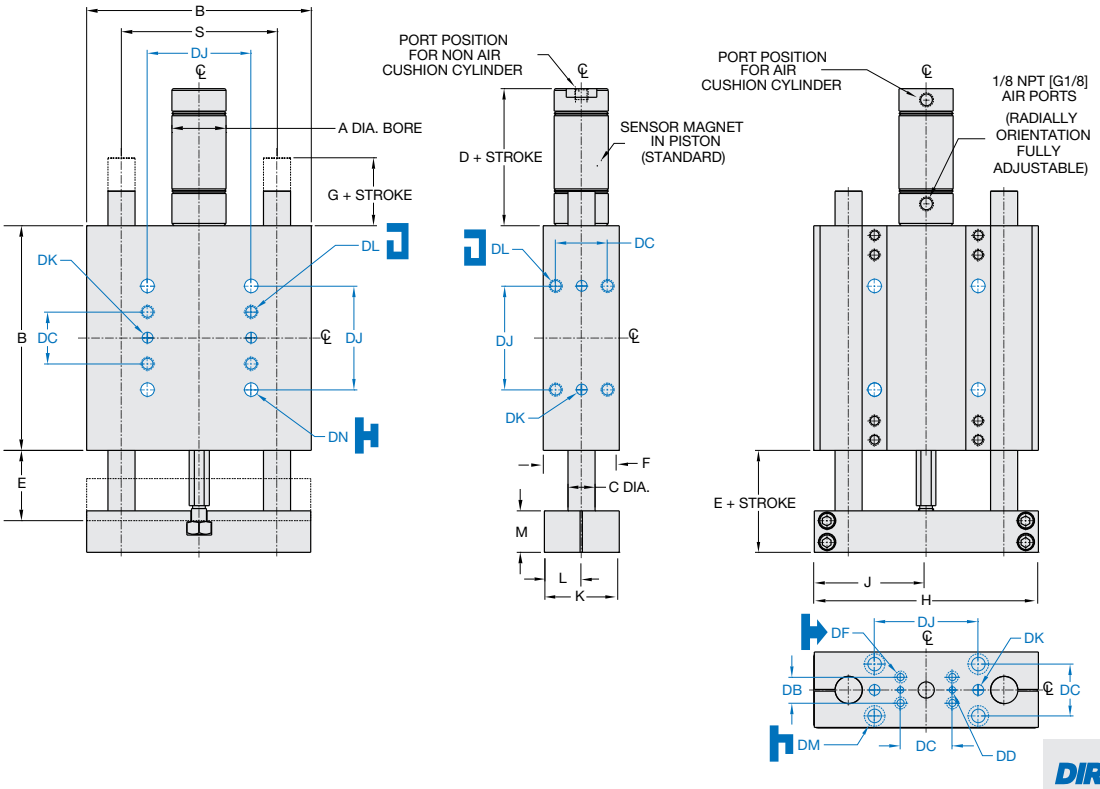
Flow Controls

- Thumb screw adjust with locking nut for adjusting c ylinder speed
- 1/8 NPT or G1/8 pipe threads

	A	B	C	D	E	F	G	H
DLT-10	.343"	.87	.375	.480	.320	.577	3.60	1.12
DLT-12	.375"	.95	.375	.450	.230	.577	3.60	1.12
DLT-16	.437"	1.31	.437	.450	.340	.577	3.60	1.12
DLT-10M	8.7mm	22.1	9.5	12.2	8.1	14.7	91.4	28.4
DLT-12M	9.5mm	23.9	9.5	11.4	5.8	14.7	91.4	28.4
DLT-16M	11.1mm	33.3	11.1	11.4	8.6	14.7	91.4	28.4

LINEAR THRUSTER DLT -20, 25 -T, A
REPLACEABLE CYLINDER WITH OR W/O ADJ. AIR CUSHIONS

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

BASIC UNIT DIMENSIONS

MODEL #	A (BORE DIA.)	B (BODY SIZE)	C (SHAFT DIA.)	D	E	F	G	H	J	K	L	M	S
DLT-20	1 1/2	6.50	.787	3.00	1.960	2.20	.960	6.480	3.230	2.180	1.080	1.210	4.500
DLT-25	1 1/2	7.50	.984	3.00	2.170	2.20	1.170	7.480	3.730	2.180	1.080	1.420	5.250

DIRECTCONNECT™

DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)
DB	.750
DC	1.500
DD	.1880 x .25 DP
DF	Clearance for #10
DJ	3.000
DK	.3130 x .37 DP
DL	3/8 -16 x .56 DP
DM	Clearance for 3/8
DN	Clearance for 3/8

How to Order: Basic Unit

BASIC MODEL — STYLE — STROKE

DLT - ☐ - ☐ - ☐ - ☐ - **S**

SIZE — BEARING — SHAFTING

Oversized guide shafts available. Please consult factory.

SIZE **20, 25**

STYLE **T** Replaceable cylinder w/o adjustable air cushions
A Replaceable cylinder with adjustable air cushions

BEARING **B** Linear ball bearings
C Composite bushings

Custom strokes available. Please consult factory.

STROKE (inches)
DLT-20 **1-24** @ 1" increments
DLT-25 **1-26** @ 1" increments

SHAFTING **S** Corrosion resistant shafting

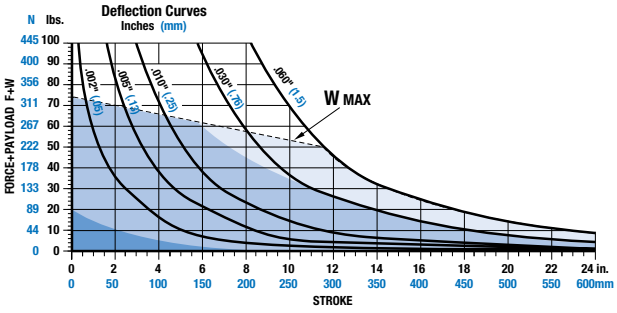
SAMPLE ORDER: DLT-20-A-B-8
Ex: Thruster, Size 20, Replaceable Cylinder w/Adjustable Air Cushions, Linear Ball Bushings, 8 inch Stroke

Accessories: (Order Separately)

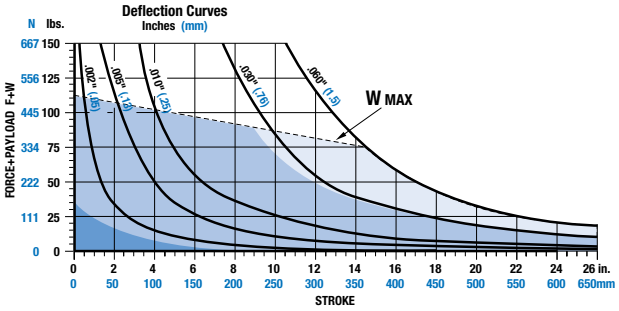
	DLT-20	DLT-25	QTY/THRUSTER
SHOCK/STOP ACCESSORIES			
Universal Mounting Kit (Shock, Stop or Sensor)	OSAK-061	OSAK-063	1,2,3 or 4
Urethane Bumper/Clamp Collar Kit	OSAK-062	OSAK-064	1 or 2
Shock Absorber (adjustable dampening)*	SHOK-029	SHOK-029	1,2,3 or 4
Adjustable Hard Stop*	DLT-1023	DLT-1023	1,2,3 or 4
INDUCTIVE SENSOR ACCESSORIES†			
Inductive Sensor PNP Qk. Disconnect*	OISP-011	OISP-011	1 or 2
Inductive Sensor NPN Qk. Disconnect*	OISN-011	OISN-011	1 or 2
Quick. Disconnect 2M Cable Length †	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length †	CABL-013	CABL-013	1 or 2
MAGNETIC SENSOR ACCESSORIES† **			
Magneto Resistive Sensor PNP Qk. Disc.†	OHSP-005	OHSP-005	1 or 2
Magneto Resistive Sensor NPN Qk. Disc.†	OHSN-005	OHSN-005	1 or 2
Quick. Disconnect 2M Cable Length †	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length †	CABL-013	CABL-013	1 or 2
PNEUMATIC ACCESSORIES			
1/8 NPT Telescopic Airlines (up to 6")	OTAL-039	OTAL-039	1,2,3 or 4
1/8 NPT Telescopic Airlines (up to 12")	OTAL-040	OTAL-040	1,2,3 or 4
1/8 NPT Telescopic Airlines (up to 18")	OTAL-041	OTAL-041	1,2,3 or 4
1/8 NPT Telescopic Airlines (up to 24")	OTAL-042	OTAL-042	1,2,3 or 4
1/8 NPT Adjustable Flow Control	VLVF-004	VLVF-004	1 or 2

*Requires Universal Mounting Kit †Sensor and cable sold separately **Piston magnet standard

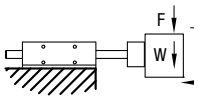
DLT-20-T, A, U



DLT-25-T, A, U



F=Externally applied force (lbs. or N)
W=Weight of payload (lbs. or N)
F+W=Total deflection force (lbs. or N)



Shock Absorbers and Flow Controls are recommended for nearly all applications

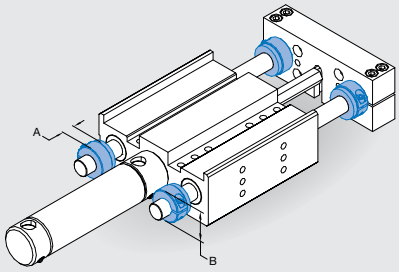
Use **Double Shocks** in both directions | Use **Single Shock** in both directions | Use **Bumpers or Cushioned Cylinder**

Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional accelera tion effect of gravity.

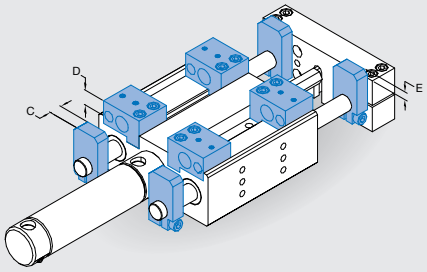
Specifications	DLT-20
Maximum Air Pressure	100 psi
Thrust Force @ 80psi/5.5bar	140 lbs.
Weight (Basic Unit **-T**, **-A**)	12.7 lbs.
Additional Weight per Stroke	0.38 lbs./in.
Cylinder Bore Diameter	1-1/2"
Shaft Diameter	0.787"

Specifications	DLT-25
Maximum Air Pressure	100 psi
Thrust Force @ 80psi/5.5bar	140 lbs.
Weight (Basic Unit **-T**, **-A**)	17.6 lbs.
Additional Weight per Stroke	0.53 lbs./in.
Cylinder Bore Diameter	1-1/2"
Shaft Diameter	0.984"

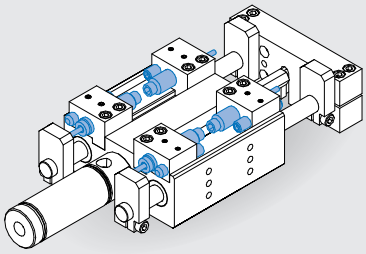
Accessory Mounting Technical Data



Urethane Bumpers & Clamp Collars
- Urethane Bumpers for shock absorption and noise dampening
- Adjustable Clamp Collars for end of stroke position adjustment
- Kit contains (2) Collars and (2) Shock P ads for adjustment of travel in one direction

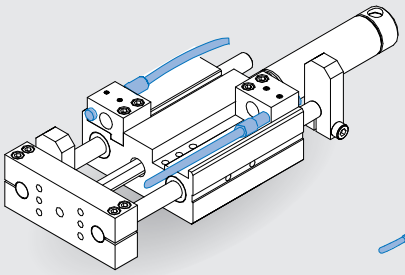


Universal Mounting Kit
- Kit mounts (1) Shock Absorber and (1) Inductive Proximity Sensor or (1) Shock and (1) Adjustable Hard Stop
- Kit includes Mounting Bracket, Hardened Tool Steel Target and Hardware
- Target allows for unlimited stroke adjustment. Fine adjustment is achieved using Adjustable Hard Stop or Shock Absorber
- Mounting Bracket keys into bod y for secure positioning and excellent rigidity
- Four possible mounting positions



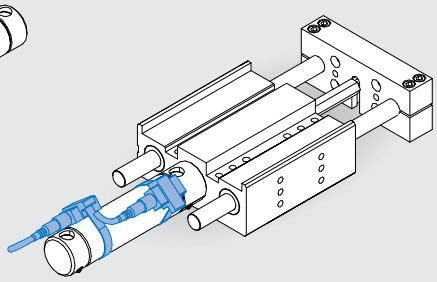
Adjustable Hard Stops
- For precision (+/-.001") end point positioning
- Allows for end stop position adjustment independent of shock absorber hard stop
- Allen wrench adjustable

Shock Absorbers
- Full stroking piston rod
- Built-in hard stop
- Position adjustable
- Adjustable dampening



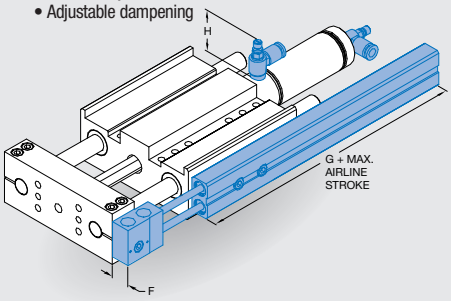
Inductive Proximity Sensors
- 8mm diameter
- Threaded Quick Disconnect with built-in LED output
- PNP and NPN a vailable

Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length



Magneto Resistive Sensors
- Quick Disconnect with built-in LED output
- Strap-on Mounting Kit included
- PNP and NPN a vailable

Straight Quick Disconnect Cable
- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length



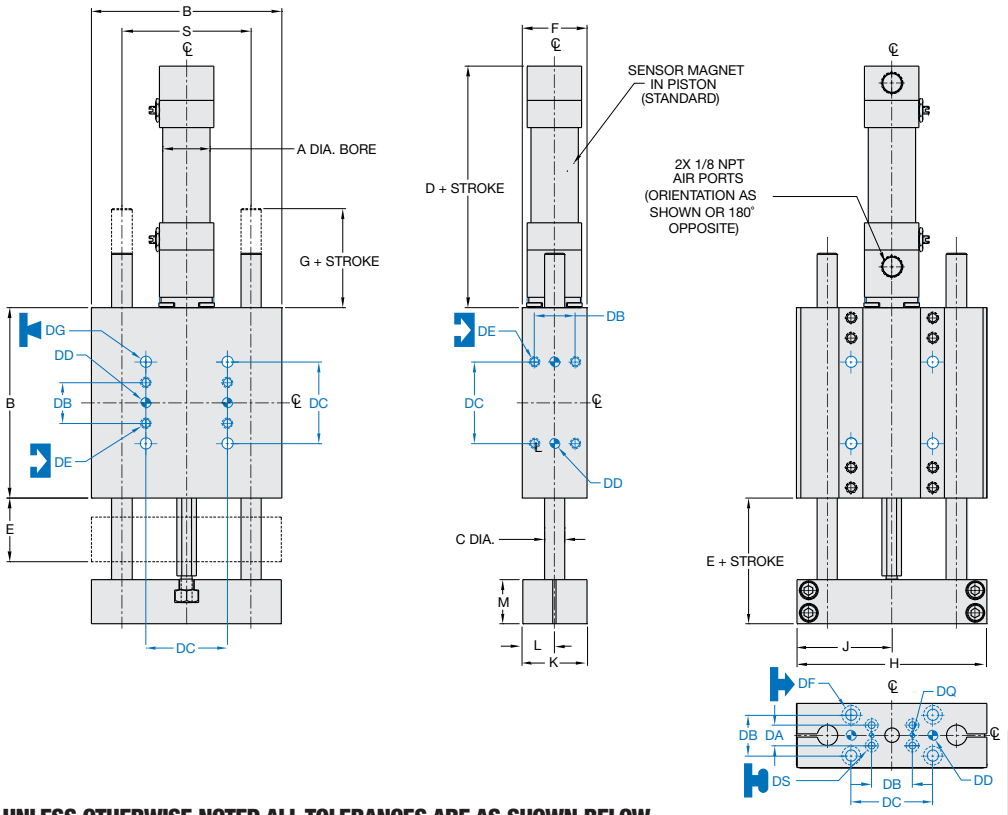
Telescoping Airlines
- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- 1/8 NPT or G1/8 pipe threads
- (2) user air ports per module

Flow Controls
- Thumb screw adjust with locking nut for adjusting c ylinder speed
- 1/8 NPT or G1/8 pipe threads

	A	B	C	E	F	G	H
DLT-20	.500"	1.50	.500	.67	.577	3.60	1.12
DLT-25	.500"	1.75	.500	.67	.577	3.60	1.12

LINEAR THRUSTER DLT -10M, 12M, 16M -N, U
REPAIRABLE (NFPA STYLE) CYLINDER w/FIXED AIR CUSHIONS

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

BASIC UNIT DIMENSIONS

(BORE DIA. / BODY SIZE / SHAFT DIA.)

MODEL #	A	B	C	D	E	F	G	H	J	K	L	M	S
DLT-10	3/4	3.50	.375	3.44	1.313	1.19	.82	3.490	1.740	1.178	.584	.813	2.375
DLT-12	1 1/8	4.00	.472	3.44	1.313	1.63	.82	3.985	1.985	1.615	.802	.813	2.750
DLT-16	1 1/8	4.75	.630	3.44	1.375	1.63	.76	4.735	2.360	1.615	.802	.813	3.250

DIRECTCONNECT™

DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)
DA	.375
DB	.750
DC	1.500
DD	.1880 x .25 DP
DE	#10-32 x .34 DP
DF	Clearance for #10
DG	Clearance for #10
DQ	.0940 x .078 DP
DS	Clr & C'bore for #4

How to Order: Basic Unit

BASIC MODEL | METRIC | STYLE | STROKE

DLT - [SIZE] M - [STYLE] - [BEARING] - [STROKE] - S (SHAFTING)

SIZE **10, 12, 16**

STYLE **N** Repairable NFPA cylinder w/fixed air cushions (Not available in Metric)
U Non-powered unit (Without cylinder. NFPA cylinder mounting kits available)

BEARING **B** Linear ball bearings
C Composite bushings

Oversized guide shafts available. Please consult factory.

STROKE (inches)

DLT-10 **1-12** @ 1" increments
DLT-12 **1-16** @ 1" increments
DLT-16 **1-20** @ 1" increments

Custom strokes available. Please consult factory.

STROKE (mm)

DLT-10M **25, 50, 80, 100, 125, 160, 200, 250, 300**
DLT-12M **25, 50, 80, 100, 125, 160, 200, 250, 300, 320, 360, 400**
DLT-16M **25, 50, 80, 100, 125, 160, 200, 250, 300, 320, 360, 400, 500**

SHAFTING **S** Corrosion resistant shafting

SAMPLE ORDER: DLT-10-N-B-6

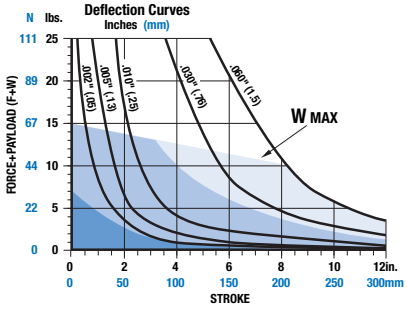
Ex: Thruster, Size 10, Repairable Cylinder w/Fixed Air Cushions, Linear Ball Bushings, 6 Inch Stroke

Accessories: (Order Separately)

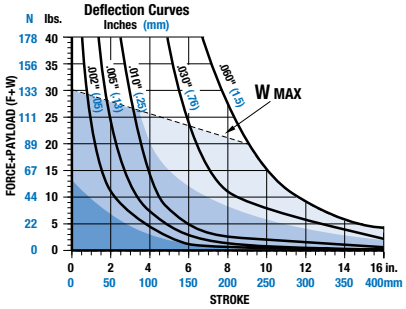
	DLT-10	DLT-12	DLT-16	QTY/THRUSTER
SHOCK/STOP ACCESSORIES				
Universal Mounting Kit (Shock, Stop or Sensor)	OSAK-055	OSAK-057	OSAK-059	1, 2, 3 or 4
Urethane Bumper/Clamp Collar Kit	OSAK-056	OSAK-058	OSAK-060	1 or 2
Urethane Bumper/Clamp Collar Kit (-10M)	OSAK-065			1 or 2
Urethane Bumper/Clamp Collar Kit (-12M)		OSAK-066		1 or 2
Shock Absorber*	SHOK-028	SHOK-010	SHOK-010	1, 2, 3 or 4
Adjustable Hard Stop*	DLT-1023	DLT-1023	DLT-1023	1, 2, 3 or 4
INDUCTIVE SENSOR ACCESSORIES†				
Inductive Sensor PNP Qk. Disconnect*	OISP-011	OISP-011	OISP-011	1 or 2
Inductive Sensor NPN Qk. Disconnect*	OISN-011	OISN-011	OISN-011	1 or 2
Quick. Disconnect 2M Cable Length †	CABL-010	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length †	CABL-013	CABL-013	CABL-013	1 or 2
MAGNETIC SENSOR ACCESSORIES† **				
Magneto Resistive Sensor PNP Qk. Disc.†	OHSP-005	OHSP-005	OHSP-005	1 or 2
Magneto Resistive Sensor NPN Qk. Disc.†	OHSN-005	OHSN-005	OHSN-005	1 or 2
Quick. Disconnect 2M Cable Length †	CABL-010	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length †	CABL-013	CABL-013	CABL-013	1 or 2
PNEUMATIC ACCESSORIES				
NFPA Cylinder Mounting Kit (-U only)	ODLT-001	ODLT-002	ODLT-002	1
1/8 NPT Telescopic Airlines (up to 6")	OTAL-039	OTAL-039	OTAL-039	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 12")	OTAL-040	OTAL-040	OTAL-040	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 18")	OTAL-041	OTAL-041	OTAL-041	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 24")	OTAL-042	OTAL-042	OTAL-042	1, 2, 3 or 4
1/8 NPT Adjustable Flow Control	VLVF-004	VLVF-004	VLVF-004	1 or 2

*Requires Universal Mounting Kit †Sensor and cable sold separately **Piston magnet standard

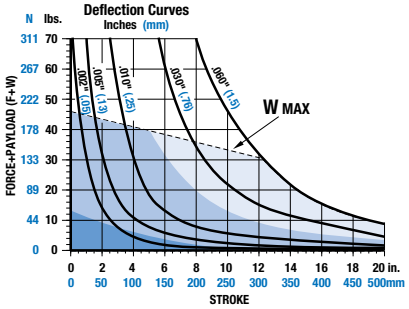
DLT-10-N, U



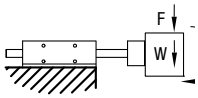
DLT-12-N, U



DLT-16-N, U



F=Externally applied force (lbs. or N)
W=Weight of payload (lbs. or N)
F+W=Total deflection force (lbs. or N)



Shock Absorbers and Flow Controls are recommended for nearly all applications

Use **Double Shocks** in both directions | Use **Single Shock** in both directions | Use **Bumpers or Cushioned Cylinder**

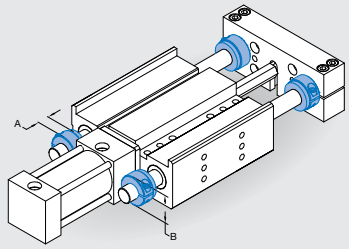
Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional accelera tion effect of gravity.

Specifications	DLT-10
Maximum Air Pressure	100 psi
Thrust Force @ 80psi/5.5bar	35 lbs.
Weight (Basic Unit **-N**)	2.2 lbs.
Additional Weight per Stroke	00.08 lbs./in.
Cylinder Bore Diameter	3/4"
Shaft Diameter	0.375"

Specifications	DLT-12
Maximum Air Pressure	100 psi
Thrust Force @ 80psi/5.5bar	79 lbs.
Weight (Basic Unit **-N**)	3.5 lbs.
Additional Weight per Stroke	0.16 lbs./in.
Cylinder Bore Diameter	1-1/8"
Shaft Diameter	0.472"

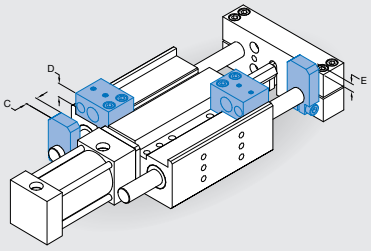
Specifications	DLT-16
Maximum Air Pressure	100 psi
Thrust Force @ 80psi/5.5bar	79 lbs.
Weight (Basic Unit **-N**)	4.5 lbs.
Additional Weight per Stroke	0.24 lbs./in.
Cylinder Bore Diameter	1-1/8"
Shaft Diameter	0.630"

Accessory Mounting Technical Data



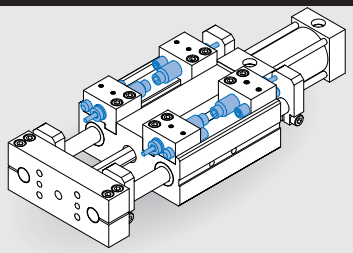
Urethane Bumpers & Clamp Collars

- Urethane Bumpers for shock absorption and noise dampening
- Adjustable Clamp Collars for end of stroke position adjustment
- Kit contains (2) Collars and (2) Shock P ads for adjustment of travel in one direction



Universal Mounting Kit

- Kit mounts (1) Shock Absorber and (1) Inductive Proximity Sensor or (1) Shock and (1) Adjustable Hard Stop
- Kit includes (1) Mounting Bracket, (1) Hardened Tool Steel Target and Hardware
- Target allows for unlimited stroke adjustment. Fine adjustment is achieved using Adjustable Hard Stop or Shock Absorber
- Mounting Bracket keys into bod y for secure positioning and excellent rigidity
- Four possible mounting positions

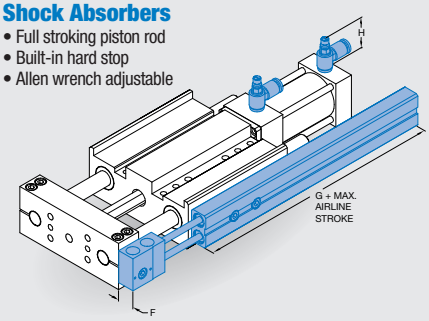


Adjustable Hard Stops

- For precision (+/-.001") end point positioning
- Allows for end stop position adjustment independent of shock absorber hard stop
- Allen wrench adjustable

Shock Absorbers

- Full stroking piston rod
- Built-in hard stop
- Allen wrench adjustable

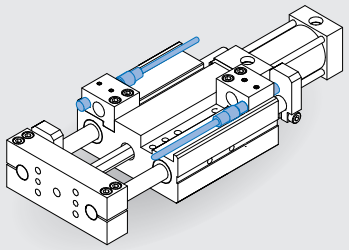


Telescoping Airlines

- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked.
- 1/8 NPT pipe threads
- (2) user air ports per module

Flow Controls

- Thumb screw adjust with locking nut for adjusting c ylinder speed
- 1/8 NPT pipe threads

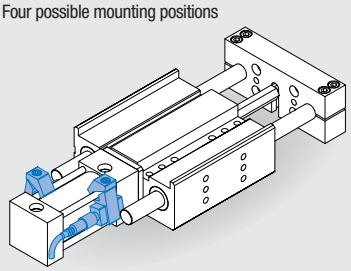


Inductive Proximity Sensors

- 8mm diameter
- Threaded Quick Disconnect with built-in LED output
- PNP and NPN a vailable

Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

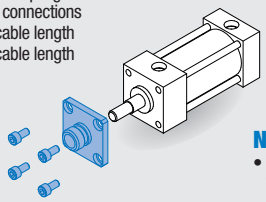


Magneto Resistive Sensors

- Quick Disconnect with built-in LED output
- Clamp-on Mounting Kit included
- PNP and NPN a vailable

Straight Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length



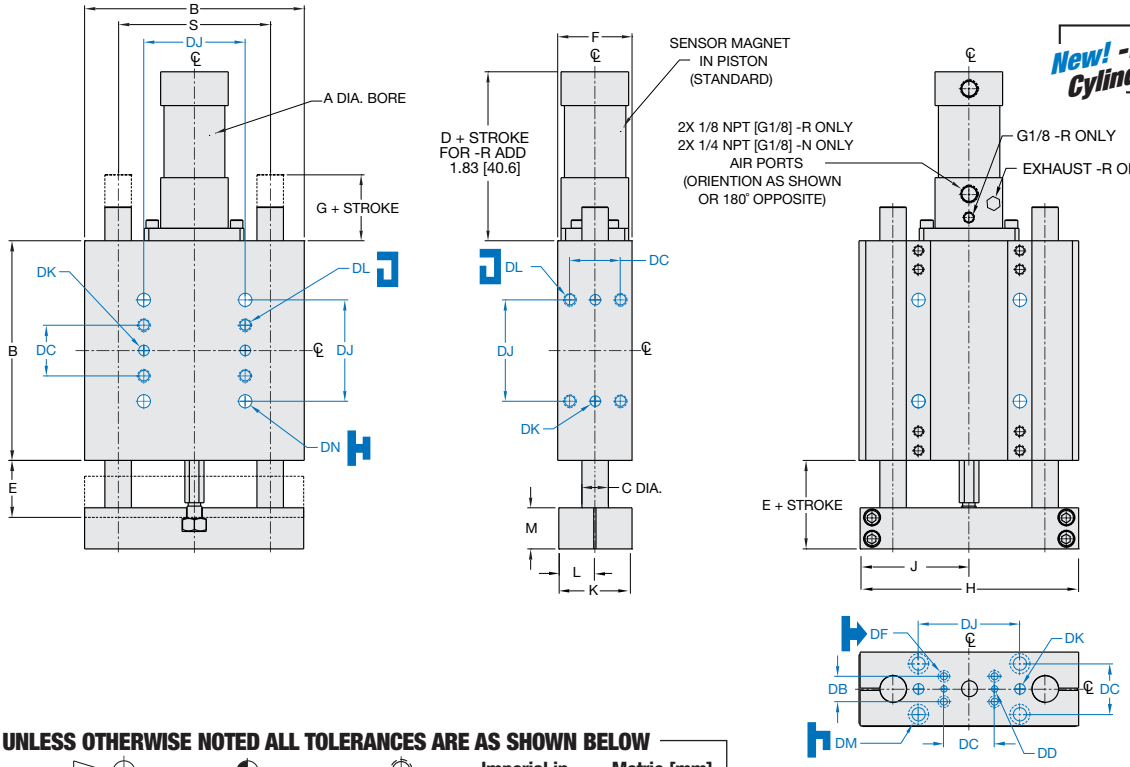
NFPA Cylinder Mounting Kit

- Used to mount standard face mounted NFP A cylinders to non-powered units (**-U**)

	A	B	C	D	E	F	G	H
DLT-10	.343"	.87	.375	.480	.320	.577	3.60	1.12
DLT-12	.375"	.95	.375	.450	.230	.577	3.60	1.12
DLT-16	.437"	1.31	.437	.450	.340	.577	3.60	1.12
DLT-10M	8.7mm	22.1	9.5	12.2	8.1	14.7	91.4	28.4
DLT-12M	9.5mm	23.9	9.5	11.4	5.8	14.7	91.4	28.4
DLT-16M	11.1mm	33.3	11.1	11.4	8.6	14.7	91.4	28.4

LINEAR THRUSTER DLT -20M, 25M -N, R, U
REPAIRABLE (NFPA/VDMA) CYLINDER W/ADJ. AIR CUSHIONS

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

BASIC UNIT DIMENSIONS

MODEL #	BORE DIA. -N A	BORE DIA. -R A	B	BODY SIZE C	SHAFT DIA. D	E	F	G	H	J	K	L	M	S
DLT-20	1 1/2	32mm	6.50	.787	4.01	1.960	2.20	.960	6.480	3.230	2.180	1.080	1.210	4.500
DLT-25	1 1/2	32mm	7.50	.984	4.01	2.170	2.20	1.170	7.480	3.730	2.180	1.080	1.420	5.250
DLT-20M	32	32	165.1	20	107.7	49.8	55.9	24.4	164.6	82.0	55.4	27.4	30.7	114.30
DLT-25M	32	32	190.5	25	107.7	55.1	55.9	29.7	190.0	94.7	55.4	27.4	36.1	133.35

DIRECT CONNECT DIMENSIONS

STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DB	.750	19.1
DC	1.500	38.1
DD	.1880 x .25DP	5mm H7 x 6DP
DF	Clearance for #10	Clearance for M5
DJ	3.000	76.2
DK	.3130 x .37 DP	8mm H7 x 9.4 DP
DL	3/8 -16 x .56 DP	M10 x 14.2 DP
DM	Clearance for 3/8	Clearance for M10
DN	Clearance for 3/8	Clearance for M10

How to Order: Basic Unit

BASIC MODEL | METRIC | STYLE | STROKE

DLT - [ ] **M** - [ ] - [ ] - [ ] - **S**

SIZE | BEARING | SHAFTING

SIZE **20, 25**

Oversized guide shafts available. Please consult factory.

METRIC **M**

STYLE **N** Repairable NFPA/VDMA cylinder w/adjustable air cushions
R Repairable locking VDMA cylinder w/adjustable air cushions
U Non-powered unit (Without cylinder. NFPA/VDMA cylinder mounting kits available)

BEARING **B** Linear ball bearings
C Composite bushings

STROKE (inches)
DLT-20 **1-24** @ 1" increments
DLT-25 **1-26** @ 1" increments

Custom strokes available. Please consult factory.

STROKE (mm)
DLT-20M **25, 50, 80, 100, 125, 160, 200, 250, 300, 320, 360, 400, 500**
DLT-25M **25, 50, 80, 100, 125, 160, 200, 250, 300, 320, 360, 400, 500**

SHAFTING **S** Corrosion resistant shafting

SAMPLE ORDER: DLT-20-N-B-12

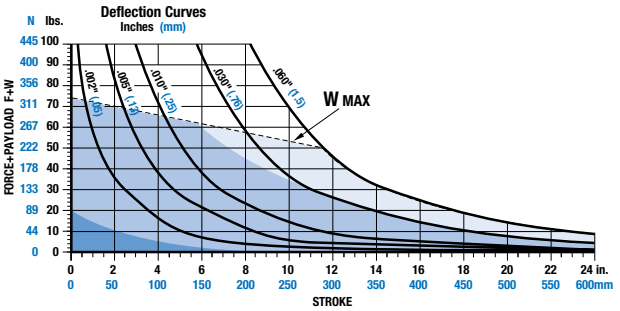
Ex: Thruster, Size 20, Repairable NFPA Cylinder w/Adjustable Air Cushions, Linear Ball Bushings, 12 Inch Stroke

Accessories: (Order Separately)

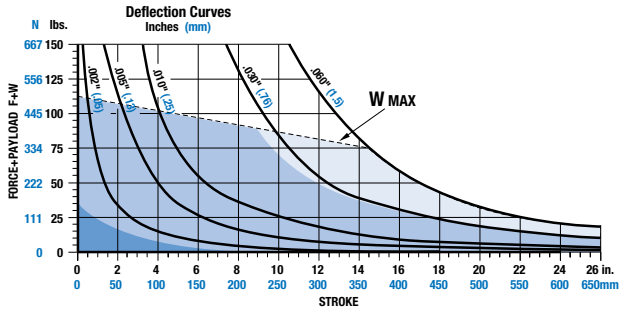
	DLT-20M	DLT-25M	QTY/THRUSTER
SHOCK/STOP ACCESSORIES			
Universal Mounting Kit (Shock, Stop or Sensor)	OSAK-061	OSAK-063	1, 2, 3 or 4
Urethane Bumper/Clamp Collar Kit	OSAK-062	OSAK-064	1 or 2
Shock Absorber (adjustable dampening)*	SHOK-029	SHOK-029	1, 2, 3 or 4
Adjustable Hard Stop*	DLT-1023	DLT-1023	1, 2, 3 or 4
INDUCTIVE SENSOR ACCESSORIES†			
Inductive Sensor PNP Qk. Disconnect*	OISP-011	OISP-011	1 or 2
Inductive Sensor NPN Qk. Disconnect*	OISN-011	OISN-011	1 or 2
Quick. Disconnect 2M Cable Length †	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length †	CABL-013	CABL-013	1 or 2
Cable Extension Cord 1M Length	CABL-015	CABL-015	1 or 2
Cable Extension Cord 2M Length	CABL-016	CABL-016	1 or 2
MAGNETIC SENSOR ACCESSORIES† **			
Magneto Resistive Sensor PNP Qk. Disc.†	OHSP-020	OHSP-020	1 or 2
Magneto Resistive Sensor NPN Qk. Disc.†	OHSN-020	OHSN-020	1 or 2
Quick. Disconnect 2M Cable Length †	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length †	CABL-013	CABL-013	1 or 2
Cable Extension Cord 1M Length	CABL-015	CABL-015	1 or 2
Cable Extension Cord 2M Length	CABL-016	CABL-016	1 or 2
PNEUMATIC ACCESSORIES			
NFPA Cylinder Mounting Kit (**-U** only)	ODLT-003	ODLT-003	1
1/8 NPT Telescopic Airlines (up to 6")	OTAL-039	OTAL-039	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 12")	OTAL-040	OTAL-040	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 18")	OTAL-041	OTAL-041	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 24")	OTAL-042	OTAL-042	1, 2, 3 or 4
1/4 NPT Adjustable Flow Control	VLVF-006	VLVF-006	1 or 2
VDMA Cylinder Mounting Kit (**-U** Metric only)	ODLT-004	ODLT-004	1
G1/8 Telescopic Airlines (up to 160mm)	OTAL-045	OTAL-045	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 300mm)	OTAL-046	OTAL-046	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 450mm)	OTAL-047	OTAL-047	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 600mm)	OTAL-048	OTAL-048	1, 2, 3 or 4
G1/8 Adjustable Flow Control	VLVF-005	VLVF-005	1 or 2
1/8 NPT Adjustable Flow Control	VLVF-004	VLVF-004	1 or 2
G1/8 Male to 1/8 NPT Adapter	PLFT-025	PLFT-025	1 or 2

*Requires Universal Mounting Kit †Sensor and cable sold separately. **Piston magnet standard

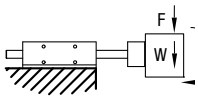
DLT-20M-N, R, U



DLT-25M-N, R, U



F=Externally applied force (lbs. or N)
W=Weight of payload (lbs. or N)
F+**W**=Total deflection force (lbs. or N)



Shock Absorbers and Flow Controls are recommended for nearly all applications

Use **Double Shocks** in both directions

Use **Single Shock** in both directions

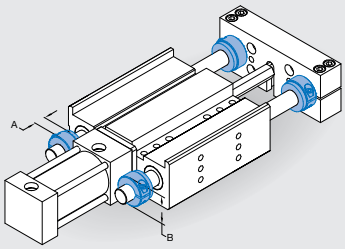
Use **Bumpers or Cushioned Cylinder**

Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional accelera tion effect of gravity.

Specifications	DLT-20	DLT-20M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	140 lbs.	443N
Weight (Basic Unit **-N, -R**)	14.3 lbs.	6.3 kg
Additional Weight per Stroke **-N, -R**	0.53 lbs./in.	7.9g/mm
Cylinder Bore Diameter **-N**	1-1/2"	32mm
Cylinder Bore Diameter **-R**	32mm	32mm
Shaft Diameter	0.787"	20mm
Min. Air Pressure to Release Cylinder Lock **-R**	60 psi	4 bar
Holding Force of Locking Mechanism **-R**	123 psi	550N

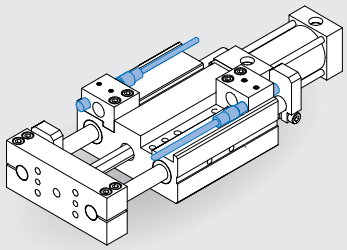
Specifications	DLT-25	DLT-25M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	140 lbs.	443N
Weight (Basic Unit **-N, -R**)	19.2 lbs.	8.5 kg
Additional Weight per Stroke **-N, -R**	0.68 lbs./in.	10.7g/mm
Cylinder Bore Diameter **-N**	1-1/2"	32mm
Cylinder Bore Diameter **-R**	32mm	32mm
Shaft Diameter	0.984"	25mm
Min. Air Pressure to Release Cylinder Lock **-R**	60 psi	4 bar
Holding Force of Locking Mechanism **-R**	123 psi	550N

Accessory Mounting Technical Data



Urethane Bumpers & Clamp Collars

- Urethane Bumpers for shock absorption and noise dampening
- Adjustable Clamp Collars for end of stroke position adjustment
- Kit contains (2) Collars and (2) Shock P ads for adjustment of travel in one direction

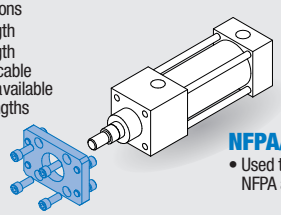


Inductive Proximity Sensors

- 8mm diameter
- Threaded Quick Disconnect with built-in LED output
- PNP and NPN a vailable

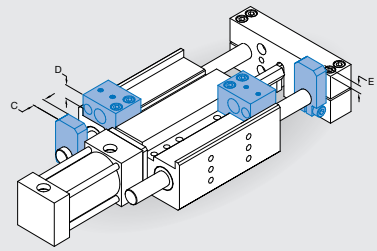
Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length
- Quick disconnect cable extensions cords available in 1 or 2 meter lengths



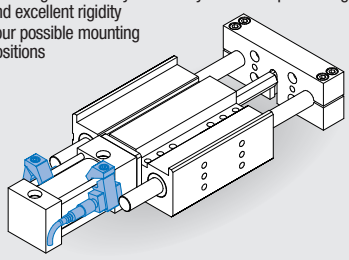
NFPA/VDMA Cylinder Mounting Kit

- Used to mount standard sleeve-nut face mounted NFPA and VDMA cylinders to non-powered units



Universal Mounting Kit

- Kit mounts (1) Shock Absorber and (1) Inductive Proximity Sensor or (1) Shock and (1) Adjustable Hard Stop
- Kit includes (1) Mounting Bracket, (1) Hardened Tool Steel Target and Hardware
- Target allows for unlimited stroke adjustment. Fine adjustment is achieved using Adjustable Hard Stop or Shock Absorber
- Mounting Bracket keys into body for secure positioning and excellent rigidity
- Four possible mounting positions

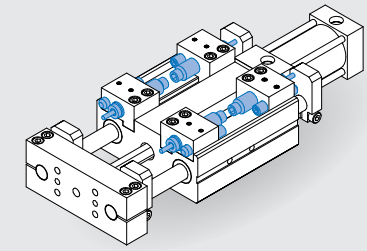


Magneto Resistive Sensors

- Quick Disconnect with built-in LED output
- Clamp-on Mounting Kit included
- PNP and NPN a vailable

Straight Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length
- Quick disconnect cable extensions cords available in 1 or 2 meter lengths

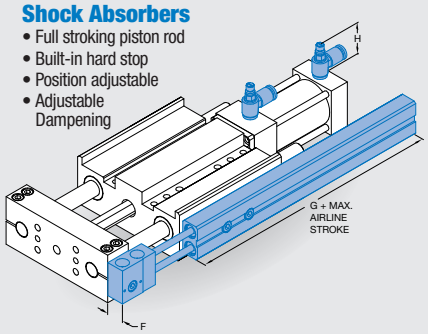


Adjustable Hard Stops

- For precision (+/-.001") end point positioning
- Allows for end stop position adjustment independent of shock absorber hard stop
- Allen wrench adjustable

Shock Absorbers

- Full stroking piston rod
- Built-in hard stop
- Position adjustable
- Adjustable Dampening



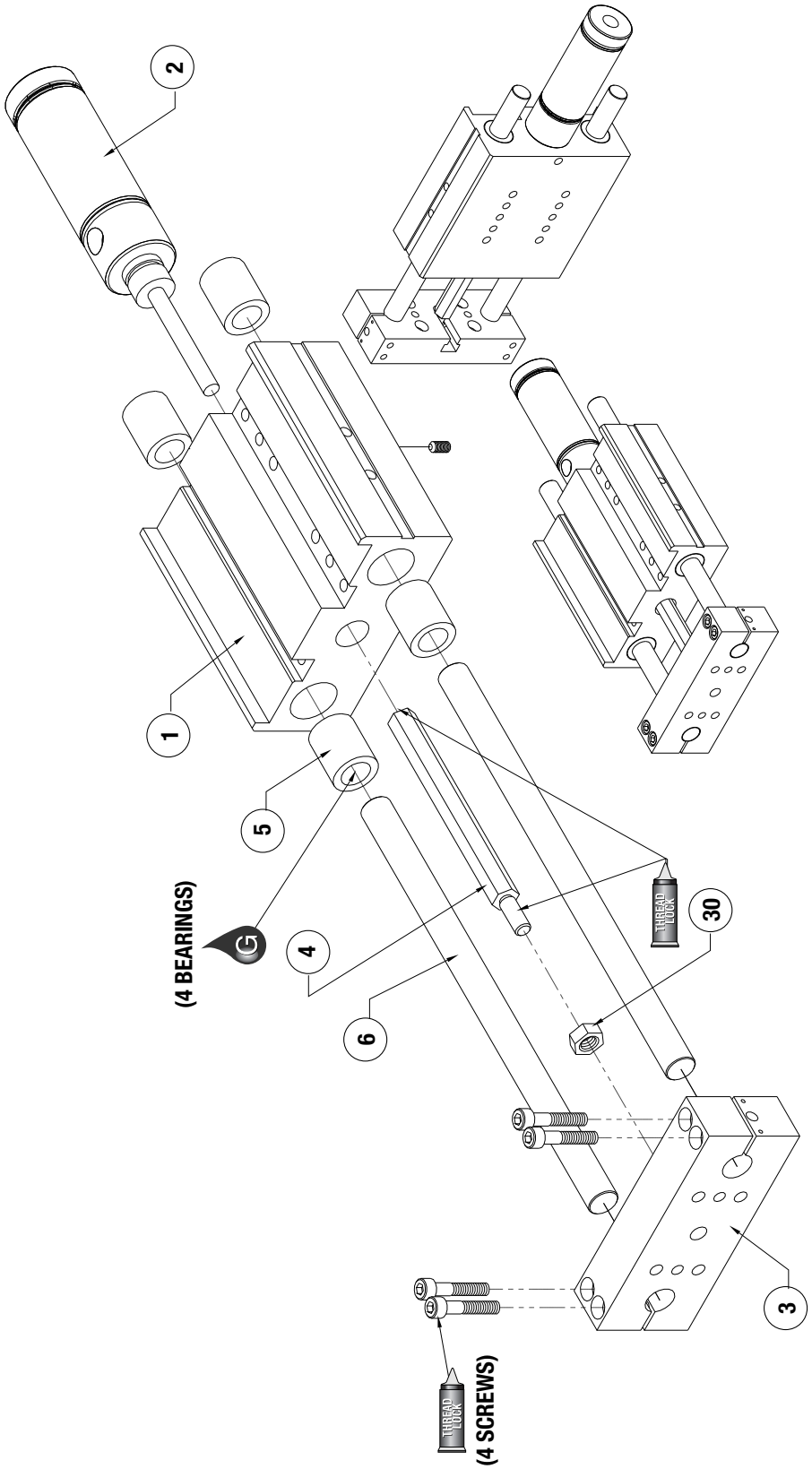
Telescoping Airlines

- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- 1/8 NPT or G1/8 pipe threads
- (2) user air ports per module

Flow Controls

- Thumb screw adjust with locking nut for adjusting c ylinder speed
- 1/4 NPT, G1/8 pipe threads or 1/8 NPT

	A	B	C	E	F	G	H
DLT-20	.500"	1.50	.500	..67	.577	3.60	1.38
DLT-25	.500"	1.75	.500	.67	.577	3.60	1.38
DLT-20M	12.7mm	38.1	12.7	17.0	14.7	91.4	35.1
DLT-25M	12.7mm	44.5	12.7	17.0	14.7	91.4	35.1



Item	Qty	Name
01	1	Body, Externally Powered
02	1	Cylinder
03	1	Tooling Plate
04	1	Shaft, Extender
05	4	Bushing
06	2	Guide Shaft
30	1	Nut, Stover

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

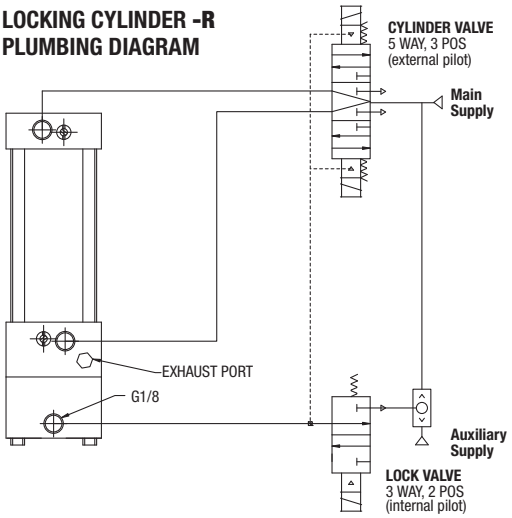
Assembly Procedure

1) Install bearings and shafts into body.
2) Attach shaft extender to cylinder rod and install through body.
3) Fasten tool plate to shaft ends.
4) Install shaft extender to tool plate.

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection

LOCKING CYLINDER -R PLUMBING DIAGRAM



1) Lock valve must be maintained energized during cylinder motion, otherwise lock is engaged and cylinder valve shifts to mid position.

2) Cylinder valve must be maintained energized during extend or retract. Also, keep energized at end of stroke until change of direction is desired.

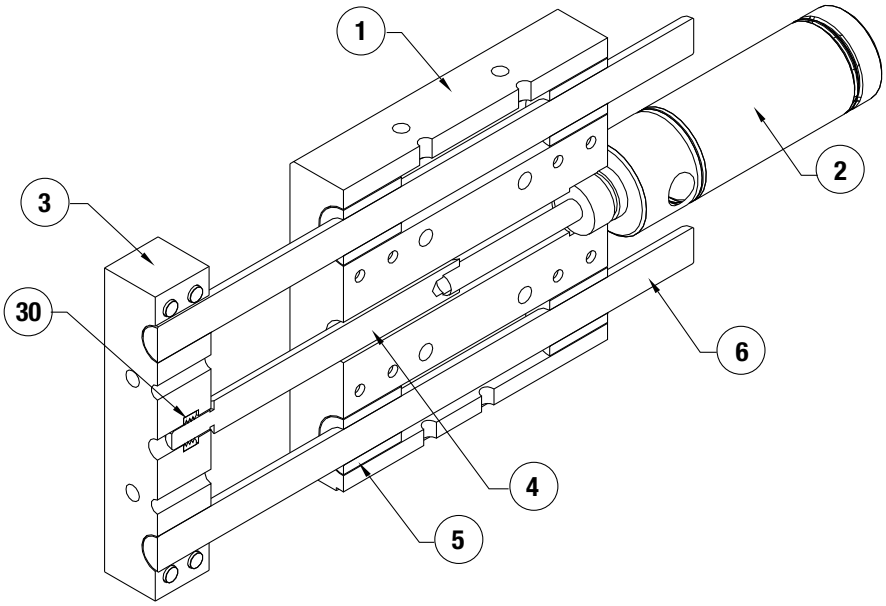
3) Mid-position of 5/3 cylinder valve may be pressurized outlets if the combinaton of pressure load on the cylinder and inertia effects of the attached load do not exceed the holding force rating of the locking device, including allowance for wear.

4) DO NOT use cylinder lines for any logic functions - pressure levels vary too much.

Item	Qty	Name
01	1	Body, Externally Powered
02	1	Cylinder
03	1	Tooling Plate
04	1	Shaft, Extender
05	4	Bushing
06	2	Guide Shaft
30	1	Nut, Stover

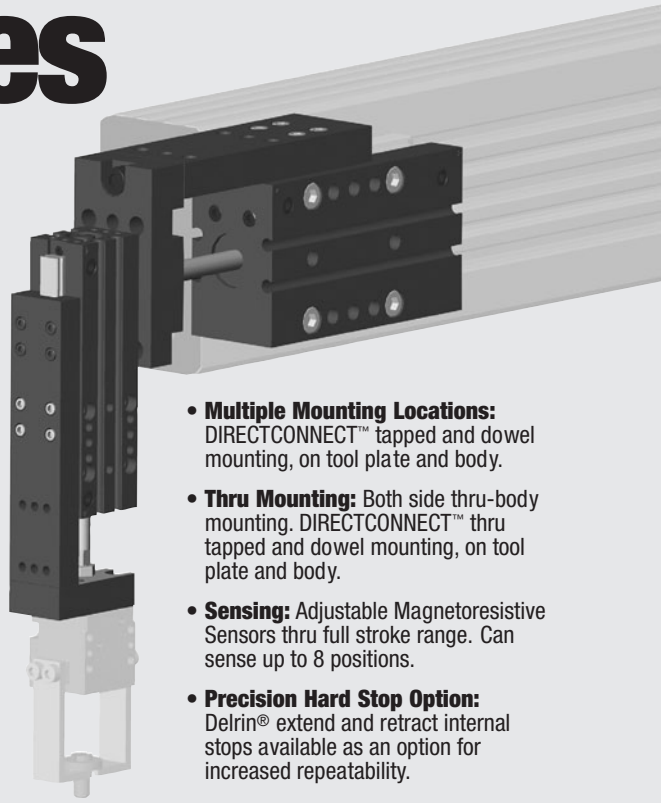
NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

NOTE: For accessory mounting, see product data sheets



SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection

Mini Ball Rail Slides- DLM DIRECTCONNECT™ Modular Series



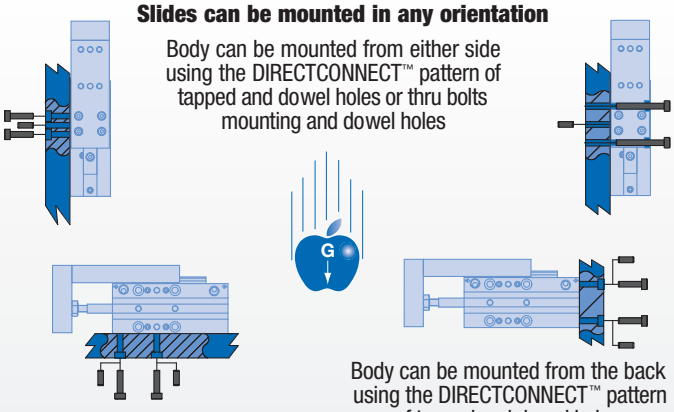
NO ADAPTER PLATES!

- **Multiple Air Port Positions:** Tapped air ports on each side, rear and bottom standard.
- **Manifold Air Porting:** Bottom air ports can be manifold O-ring sealed.
- **Stroke Adjustments:** Retract and extend adjustments for precise positioning with infinite stroke adjustability.
- **Double Bearing Option:** Longer strokes available with double bearings for greater load and moment capacity.
- **Multiple Mounting Locations:** DIRECTCONNECT™ tapped and dowel mounting, on tool plate and body.
- **Thru Mounting:** Both side thru-body mounting. DIRECTCONNECT™ thru tapped and dowel mounting, on tool plate and body.
- **Sensing:** Adjustable Magnetoresistive Sensors thru full stroke range. Can sense up to 8 positions.
- **Precision Hard Stop Option:** Delrin® extend and retract internal stops available as an option for increased repeatability.

Note: The new DLM series replaces our MPS product line. The MPS series informa tion is still available on our website and are a vailable for sale. We encourage you to consider the new DLM design for new projects.

Mounting Information:

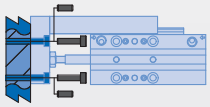
Slides can be mounted in any orientation



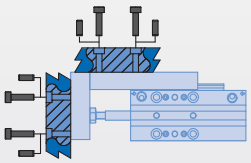
Body can be mounted from either side using the DIRECTCONNECT™ pattern of tapped and dowel holes or thru bolts mounting and dowel holes

Body can be mounted from the bottom using the DIRECTCONNECT™ pattern of tapped and dowel holes.

Body can be mounted from the back using the DIRECTCONNECT™ pattern of tapped and dowel holes.



Payload attaches to tool plate DIRECTCONNECT™ mounting pattern with screws and locates using slip fit dowel holes.



Payload attaches to tool plate DIRECTCONNECT™ to the front or to the top of the slide with ta pped and dowel holes.

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**20-100 psi**	**1.4-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**

Maintenance Specifications	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

Application Restrictions
- Machining operations generating chips
- Environments with loose particulate

*Addition of lubrication will greatly increase service life.

Product Features

Double Bearing (-D Option)
Three longer stroke sizes available with two bearings as an option for greater moment capacity

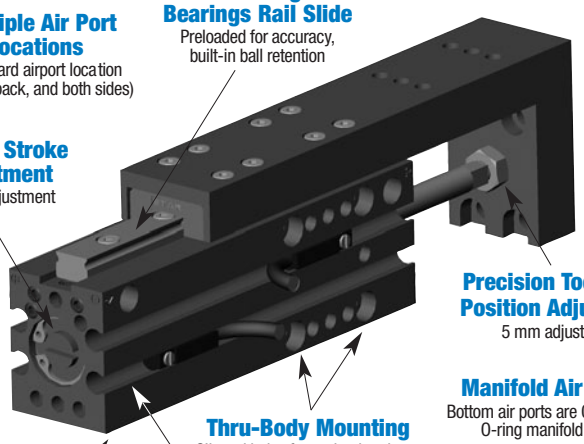
DIRECTCONNECT Mounting Patterns
Mounting on all six sides (standard)

Bearing Seals
Bearing Blocks are equipped with low friction seals

Recirculating Ball Bearings Rail Slide
Preloaded for accuracy, built-in ball retention

Multiple Air Port Locations
4 standard airport location (bottom, back, and both sides)

Retract Stroke Adjustment
5 mm Adjustment



Precision Tool Plate Position Adjustment
5 mm adjustment

Manifold Air Ports
Bottom air ports are C'bored for O-ring manifold seals

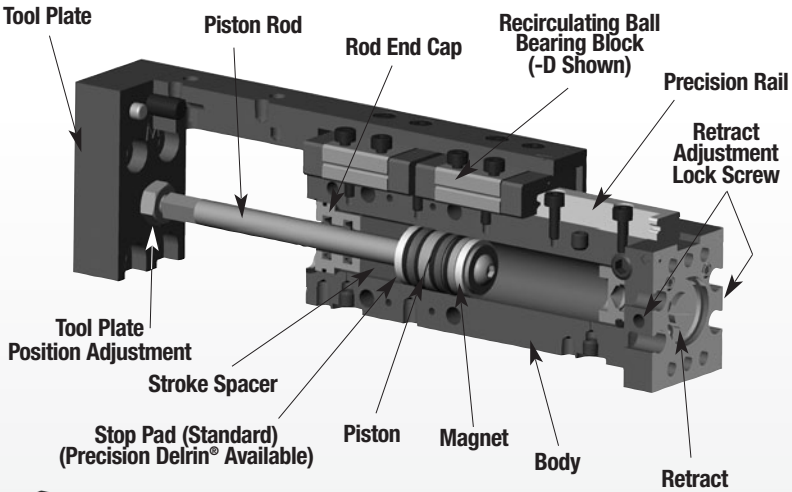
Thru-Body Mounting
C'bored holes for socket head cap screw on both sides

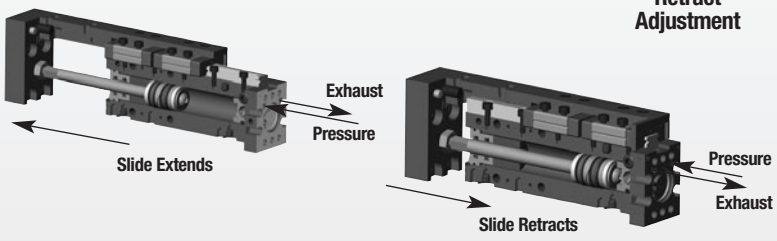
Dowel Holes Standard
Slip fit dowel holes in body and tool plate

Magneto Resistive Sensing
Mounting slots and magnet are standard for up to eight sensors (Sensors sold separately)

Precision Stops (-P Option)
Delrin® internal stops are available for increased repeatability

Operating Principle



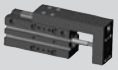


- A double acting piston slides within the body bore when pressure is applied.
- The piston is coupled to the tool plate with the piston rod.
- The tool plate is connected to the ball rail slide block which is guided by the precision rail.
- The stops are internal and attached to the piston and piston rod.
- Combination of internal spacers and user retract adjustment allow for infinite adjustment within stroke range.

Designed, manufactured and assembled in the USA

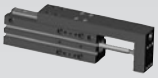
Style -DLM Mini Ball Rail Slide

Size -07M-12



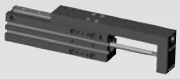
Style:	07M-12	
Max. Stroke:	0.50 in.	12 mm
Weight:	0.28 lbs.	0.13 Kg
Thrust Force:	15 lbs.	66.7 N
Max Payload:	1.0 lb.	0.45 kg

Size -07M-25



Style:	07M-25	
Max. Stroke:	1.00 in.	25 mm
Weight:	0.35 lbs.	0.16 Kg
Thrust Force:	15 lbs.	66.7 N
Max Payload:	1.0 lb.	0.45 kg

Size -07M-38



Style:	07M-38	
Max. Stroke:	1.50 in.	38 mm
Weight:	0.43 lbs.	0.20 Kg
Thrust Force:	15 lbs.	66.7 N
Max Payload:	1.0 lb.	0.45 kg

Size -07M-50

Style:	07M-50	
Max. Stroke:	2.00 in.	50 mm
Weight:	0.50 lbs.	0.23 Kg
Thrust Force:	15 lbs.	66.7 N
Max Payload:	1.0 lb.	0.45 kg

See Pages 4.72-4.79

Style -DLM Mini Ball Rail Slide

Size -09M-25

Style:	09M-25	
Max. Stroke:	1.00 in.	25 mm
Weight:	1.08 lbs.	0.49 Kg
Thrust Force:	31 lbs.	138 N
Max Payload:	2.0 lb.	0.91kg

Size -09M-50

Style:	09M-50	
Max. Stroke:	2.00 in.	50 mm
Weight:	1.11 lbs.	0.64 Kg
Thrust Force:	31 lbs.	138 N
Max Payload:	2.0 lb.	0.91 kg

Size -09M-75

Style:	09M-75	
Max. Stroke:	3.00 in.	75 mm
Weight:	1.78 lbs.	0.81 Kg
Thrust Force:	31 lbs.	138 N
Max Payload:	2.0 lb.	0.91 kg

Size -09M-100

Style:	09M-100	
Max. Stroke:	4.00 in.	100 mm
Weight:	2.13 lbs.	0.97 Kg
Thrust Force:	31 lbs.	138 N
Max Payload:	2.0 lb.	0.91 kg

See Pages 4.80-4.87

Style -DLM Mini Ball Rail Slide

Size -12M-25

Style:	12M-25	
Max. Stroke:	1.00 in.	25 mm
Weight:	1.18 lbs.	0.54 Kg
Thrust Force:	52 lbs.	231 N
Max Payload:	4.0 lb.	1.81 kg

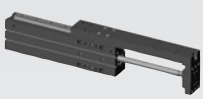
Size -12M-50

Style:	12M-50	
Max. Stroke:	2.00 in.	50 mm
Weight:	1.43 lbs.	0.65 Kg
Thrust Force:	52 lbs.	231 N
Max Payload:	4.0 lb.	1.81 kg

Size -12M-75

Style:	12M-75	
Max. Stroke:	3.00 in.	75 mm
Weight:	1.80 lbs.	0.82 Kg
Thrust Force:	52 lbs.	231 N
Max Payload:	4.0 lb.	1.81 kg

Size -12M-100



Style:	12M-100	
Max. Stroke:	4.00 in.	100 mm
Weight:	2.25 lbs.	1.02 Kg
Thrust Force:	52 lbs.	231 N
Max Payload:	4.0 lb.	1.81 kg

See Pages 4.88-4.95

MINI BALL RAIL SLIDE DLM-07M-12
DIRECTCONNECT MODULAR SERIES

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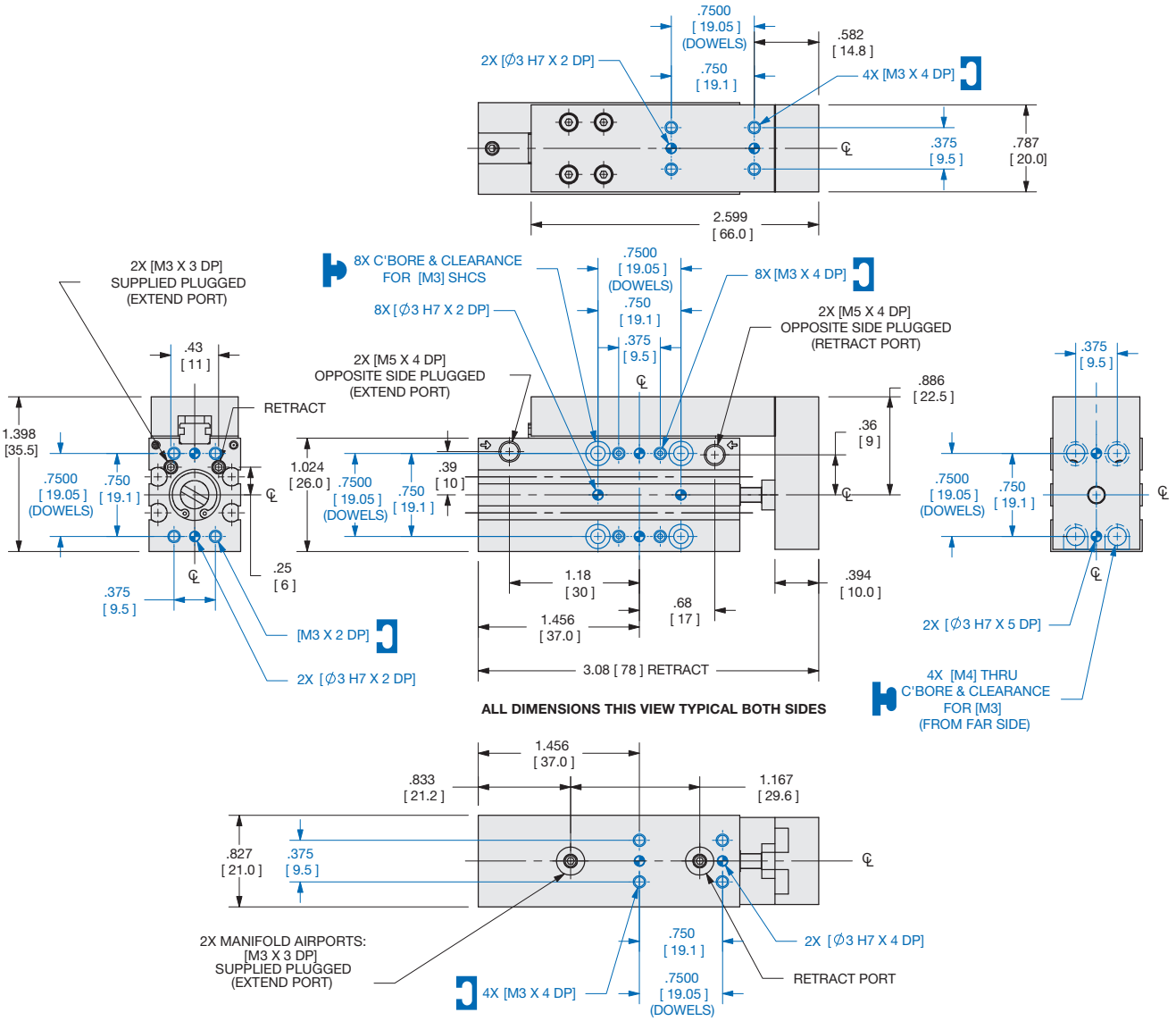


NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | BODY SIZE (See Below) | PRECISION STOPS

DLM-07M - 12 - [ ] - P

STROKE (See Below)

BODY SIZE 12
STROKE (mm) 5, 10, 12
PRECISION STOPS P

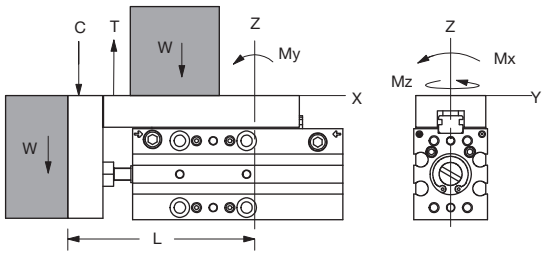
SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1-4
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1-4
PNP Magneto Resistive Sensor 90° Barrel (with Qk. Disc)*	OHSP-011	1-4
NPN Magneto Resistive Sensor 90° Barrel (with Qk. Disc.)*	OHSN-011	1-4
Quick Disconnect Cable (2 meters long)*	CABL-010	1-4
Quick Disconnect Cable (5 meters long)*	CABL-013	1-4

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit	SLKT-236	1
Manifold Seal Kit	SLKT-239	1
Adjustable Flow Control	VLVF-008	1 or 2

*Sensor and cable sold separately

SAMPLE ORDER: DLM-07M-12-10-P
Ex: DLM-07M Mini Ball Rail Slide, -12 Body Size, 10mm Stroke, Precision Stops

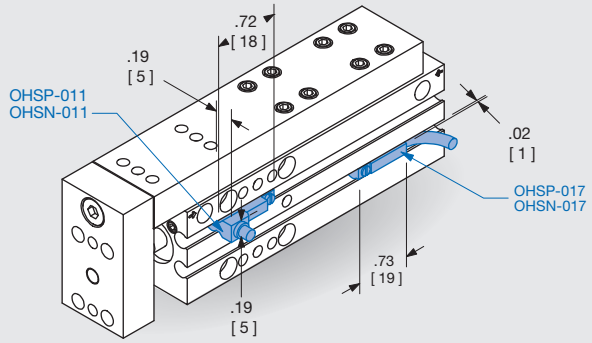
Specifications	DLM-07M-12	
Thrust Force **F** @ 100 psi, 7 bar	15 lbs.	66 N
Max. Stroke	0.50 in.	12 mm
Stroke Reduction (return)	0.19 in.	5 mm
Weight	0.28 lbs.	0.13 Kg
Maximum Payload W	1.0 lbs.	0.45 Kg
Maximum Payload (-P Option)	0.5 lbs.	0.23 Kg
Cylinder Bore Ø	0.437 in.	11 mm
Temperature Range	-30°~180° F	-35°~80° C
Actuation per 25mm of travel	0.07 sec.	
Linear accuracy per 25mm of travel	±0.0001 in.	±0.005 mm
Repeatability (-P Option)	±0.003 in.	±0.08 mm
Pressure Range	20-100 psi	1.4-7 bar
Valve required to actuate	4-way, 2-position	



Flow Controls are recommended for nearly all applications

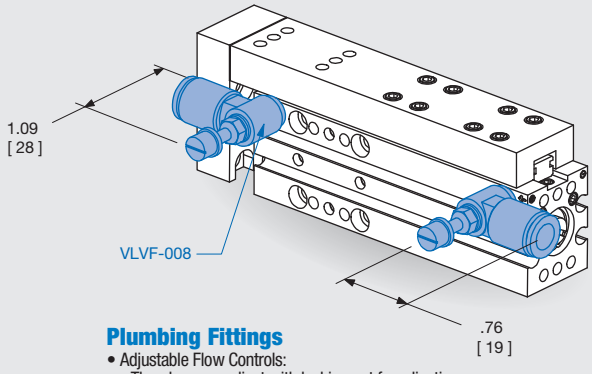
Loading Capacity	Static	Dynamic
DLM-07M-12		
Maximum Tensile **T**	110 lbs. [490 N]	67 lbs. [301 N]
Maximum Compressive **C**	110 lbs. [490 N]	67 lbs. [301 N]
Maximum Moment $\mathbf{M_X}$	45 in.-lbs. [5.1 Nm]	27 in.-lbs. [3.1 Nm]
Maximum Moment $\mathbf{M_Y}$	28 in.-lbs. [3.2 Nm]	16 in.-lbs. [1.9 Nm]
Maximum Moment $\mathbf{M_Z}$	28 in.-lbs. [3.2 Nm]	16 in.-lbs. [1.9 Nm]
Distance to Bearing Centerline **L**	2.10 in. [53 mm]	

Accessory Mounting Technical Data



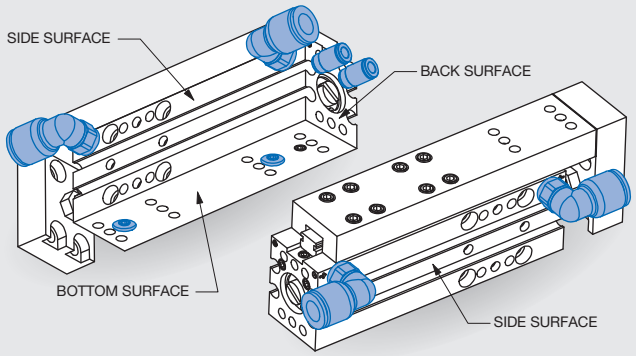
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



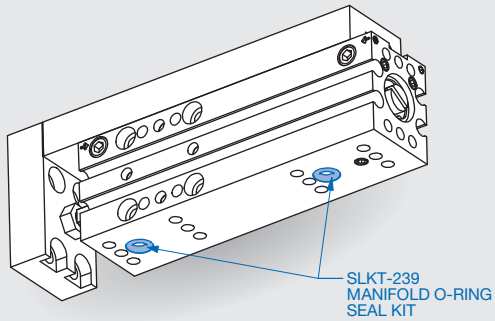
Plumbing Fittings

- Adjustable Flow Controls:
  - Thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm O.D. tubing
- Consult Factory for additional available plumbing fittings



Multiple Air Port Locations

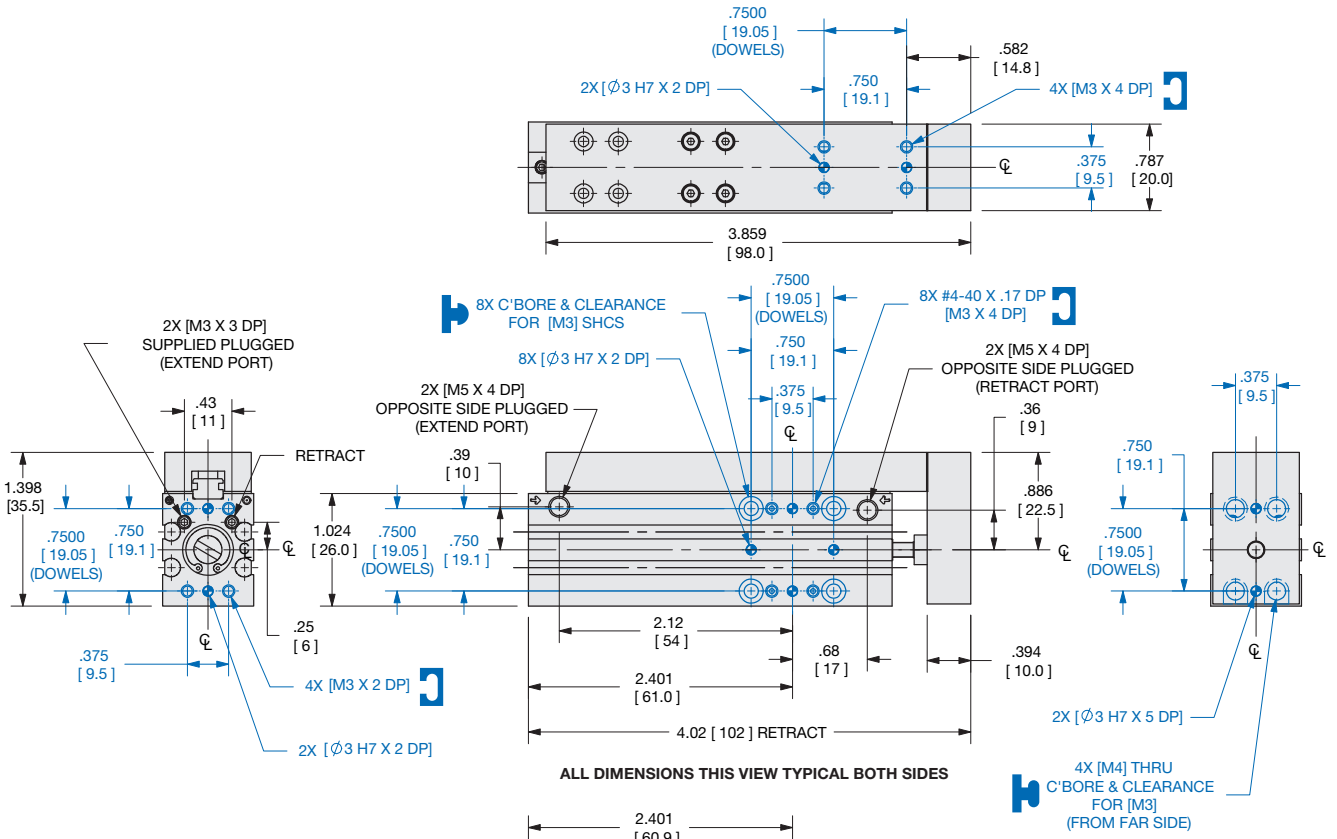
- 2 standard M5 air port locations (both sides)
- Bottom and Back airports (M3) are plugged as supplied



Manifold O-ring Seals

- Available in Seal Kit
- Kit is supplied with all seals, plugs & wrenches needed

MINI BALL RAIL SLIDE DLM-07M-25
DIRECTCONNECT MODULAR SERIES



NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | BODY SIZE (See Below) | PRECISION STOPS

DLM-07M - 25 - [ ] - D - P

STROKE (See Below) | DOUBLE BEARINGS

BODY SIZE 25
STROKE (mm) 12, 15, 20, 25
DOUBLE BEARING D
PRECISION STOPS P

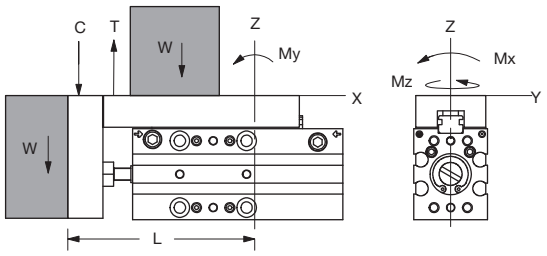
SAMPLE ORDER: DLM-07M-25-15-D
Ex: DLM-07M Mini Ball Rail Slide, -25 Body Size, 15mm Stroke, Double Ball Bearings

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1-4
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1-4
PNP Magneto Resistive Sensor 90° Barrel (with Qk. Disc)*	OHSP-011	1-4
NPN Magneto Resistive Sensor 90° Barrel (with Qk. Disc.)*	OHSN-011	1-4
Quick Disconnect Cable (2 meters long)*	CABL-010	1-4
Quick Disconnect Cable (5 meters long)*	CABL-013	1-4

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit	SLKT-236	1
Manifold Seal Kit	SLKT-239	1
Adjustable Flow Control	VLVF-008	1 or 2

*Sensor and cable sold separately

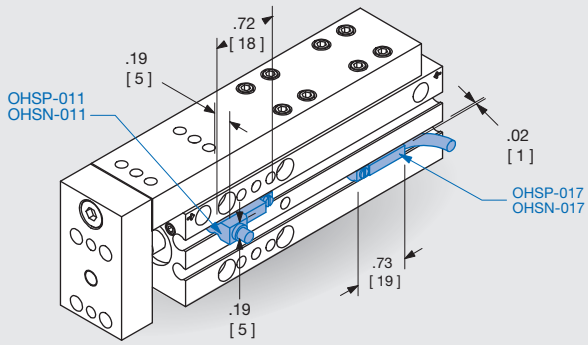
Specifications	DLM-07M-25	
Thrust Force **F** @ 100 psi, 7 bar	15 lbs.	66 N
Max. Stroke	1.00 in.	25 mm
Stroke Reduction (return)	0.19 in.	5 mm
Weight	0.35 lbs.	0.16 Kg
Maximum Payload W	1.0 lbs.	0.45 Kg
Maximum Payload (-P Option)	0.5 lbs.	0.23 Kg
Cylinder Bore Ø	0.437 in.	11 mm
Temperature Range	-30°~180° F	-35°~80° C
Actuation per 25mm of travel	0.07 sec.	
Linear accuracy per 25mm of travel	±0.0001 in.	±0.005 mm
Repeatability (-P Option)	±0.003 in.	±0.08 mm
Pressure Range	20-100 psi	1.4-7 bar
Valve required to actuate	4-way, 2-position	



Flow Controls are recommended for nearly all applications

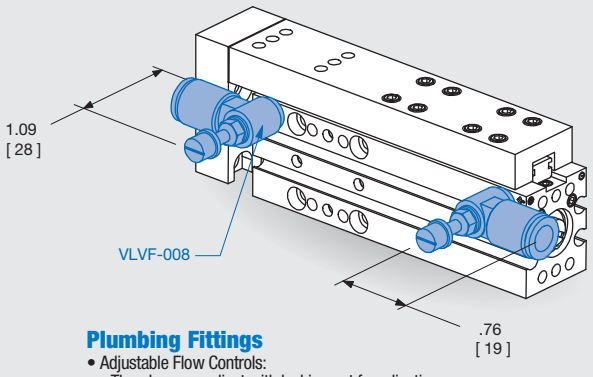
Loading Capacity	Static	Dynamic
DLM-07M-25		
Maximum Tensile **T**	110 lbs. [490 N]	67 lbs. [301 N]
Maximum Compressive **C**	110 lbs. [490 N]	67 lbs. [301 N]
Maximum Moment $\mathbf{M_X}$	45 in.-lbs. [5.1 Nm]	27 in.-lbs. [3.1 Nm]
Maximum Moment $\mathbf{M_Y}$	28 in.-lbs. [3.2 Nm]	16 in.-lbs. [1.9 Nm]
Maximum Moment $\mathbf{M_Z}$	28 in.-lbs. [3.2 Nm]	16 in.-lbs. [1.9 Nm]
Distance to Bearing Centerline L	2.39 in. [61 mm]	
DLM-07M-25-D		
Maximum Tensile **T**	220 lbs. [980 N]	135 lbs. [602 N]
Maximum Compressive **C**	220 lbs. [980 N]	135 lbs. [602 N]
Maximum Moment $\mathbf{M_X}$	90 in.-lbs. [10.2 Nm]	54 in.-lbs. [6.2 Nm]
Maximum Moment $\mathbf{M_Y}$	56 in.-lbs. [6.4 Nm]	33 in.-lbs. [3.8 Nm]
Maximum Moment $\mathbf{M_Z}$	56 in.-lbs. [6.4 Nm]	33 in.-lbs. [3.8 Nm]
Distance to Bearing Centerline L	2.87 in. [73 mm]	

Accessory Mounting Technical Data



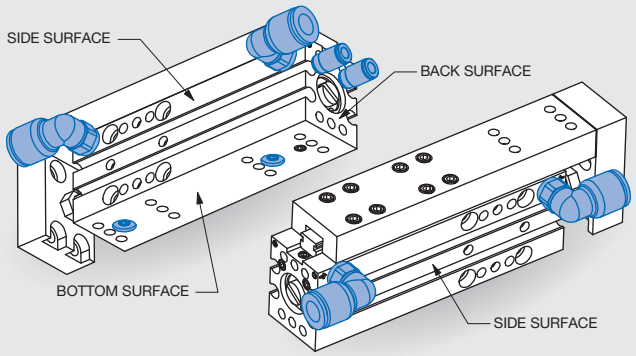
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



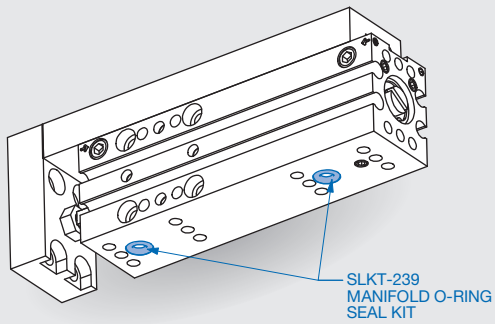
Plumbing Fittings

- Adjustable Flow Controls:
  - Thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm O.D. tubing
- Consult Factory for additional available plumbing fittings



Multiple Air Port Locations

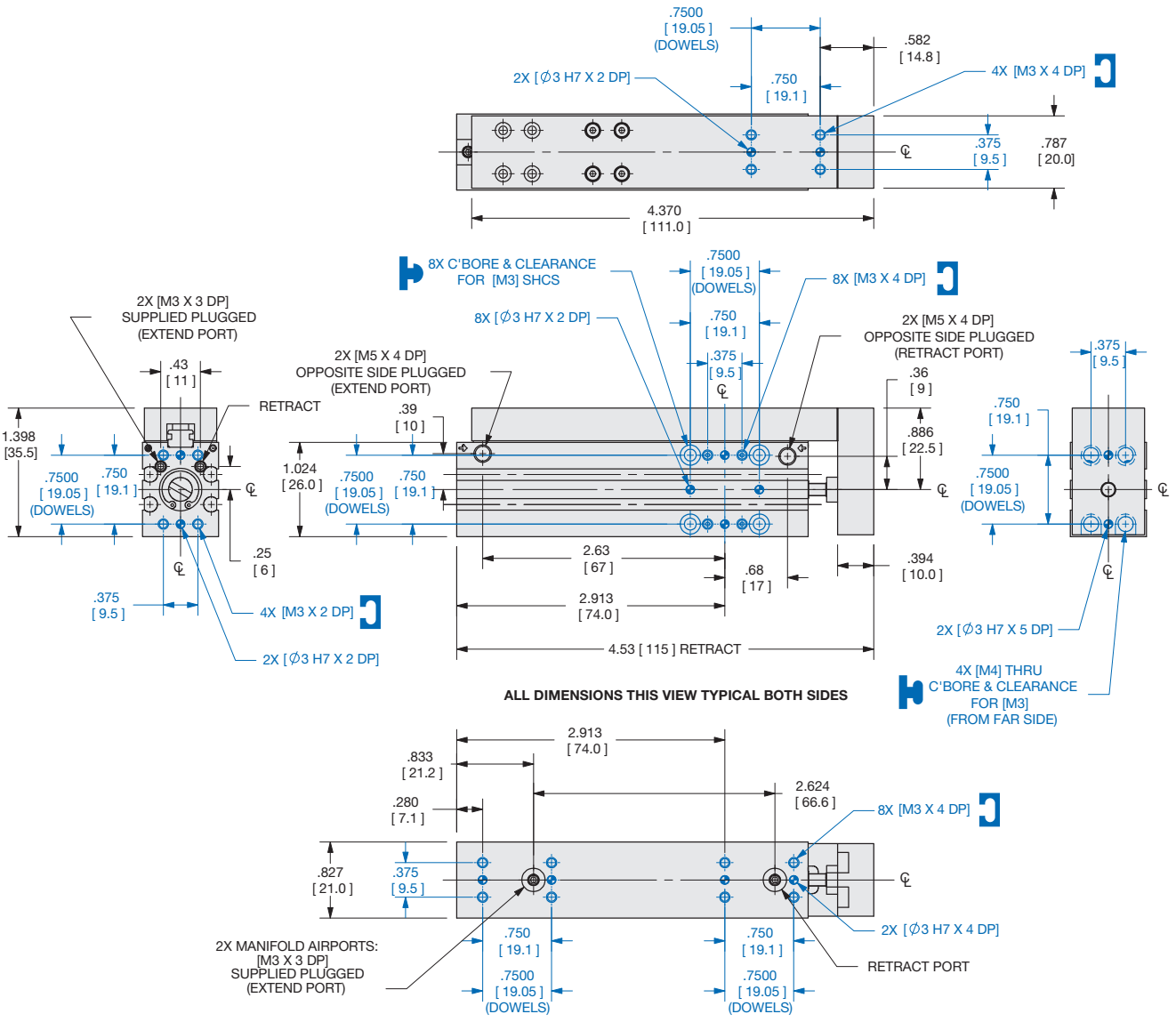
- 2 standard M5 air port locations (both sides)
- Bottom and Back airports (M3) are plugged as supplied



Manifold O-ring Seals

- Available in Seal Kit
- Kit is supplied with all seals, plugs & wrenches needed

MINI BALL RAIL SLIDE DLM-07M-38
DIRECTCONNECT MODULAR SERIES



NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

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Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | BODY SIZE (See Below) | PRECISION STOPS

DLM-07M - 38 - [ ] - D - P

STROKE (See Below) | DOUBLE BEARINGS

BODY SIZE 38
STROKE (mm) 25, 30, 35, 38
DOUBLE BEARING D
PRECISION STOPS P

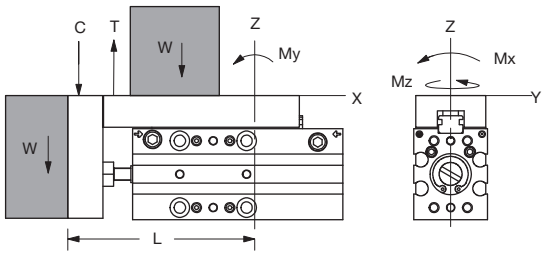
SAMPLE ORDER: DLM-07M-38-25-D-P
Ex: DLM-07M Mini Ball Rail Slide, -38 Body Size, 25mm Stroke, Double Ball Bearings, Precision Stops

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1-4
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1-4
PNP Magneto Resistive Sensor 90º Barrel (with Qk. Disc)*	OHSP-011	1-4
NPN Magneto Resistive Sensor 90º Barrel (with Qk. Disc.)*	OHSN-011	1-4
Quick Disconnect Cable (2 meters long)*	CABL-010	1-4
Quick Disconnect Cable (5 meters long)*	CABL-013	1-4

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit	SLKT-236	1
Manifold Seal Kit	SLKT-239	1
Adjustable Flow Control	VLVF-008	1 or 2

*Sensor and cable sold separately

Specifications	DLM-07M-38	
Thrust Force **F** @ 100 psi, 7 bar	15 lbs.	66 N
Max. Stroke	1.50 in.	38 mm
Stroke Reduction (return)	0.19 in.	5 mm
Weight	0.43 lbs.	0.20 Kg
Maximum Payload W	1.0 lbs.	0.45 Kg
Maximum Payload (-P Option)	0.5 lbs.	0.23 Kg
Cylinder Bore Ø	0.437 in.	11 mm
Temperature Range	-30°~180° F	-35°~80° C
Actuation per 25mm of travel	0.07 sec.	
Linear accuracy per 25mm of travel	±0.0001 in.	±0.005 mm
Repeatability (-P Option)	±0.003 in.	±0.08 mm
Pressure Range	20-100 psi	1.4-7 bar
Valve required to actuate	4-way, 2-position	

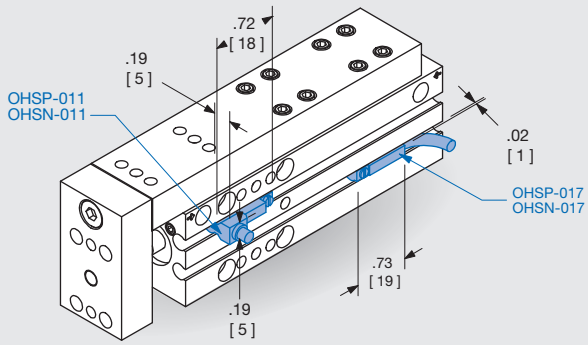


Flow Controls are recommended for nearly all applications

Loading Capacity

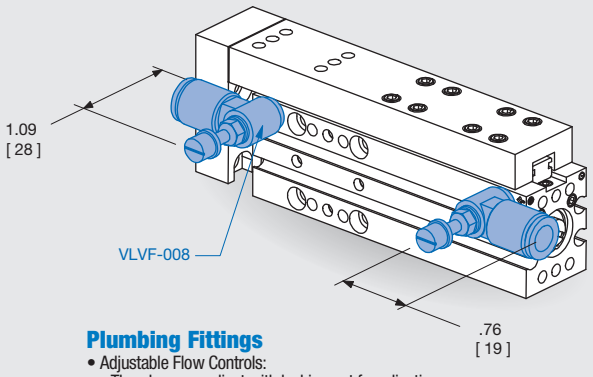
	Static	Dynamic
DLM-07M-38		
Maximum Tensile **T**	110 lbs. [490 N]	67 lbs. [301 N]
Maximum Compressive **C**	110 lbs. [490 N]	67 lbs. [301 N]
Maximum Moment $\mathbf{M_x}$	45 in.-lbs. [5.1 Nm]	27 in.-lbs. [3.1 Nm]
Maximum Moment $\mathbf{M_y}$	28 in.-lbs. [3.2 Nm]	16 in.-lbs. [1.9 Nm]
Maximum Moment $\mathbf{M_z}$	28 in.-lbs. [3.2 Nm]	16 in.-lbs. [1.9 Nm]
Distance to Bearing Centerline L	2.90 in. [74 mm]	
DLM-07M-38-D		
Maximum Tensile **T**	220 lbs. [980 N]	135 lbs. [602 N]
Maximum Compressive **C**	220 lbs. [980 N]	135 lbs. [602 N]
Maximum Moment $\mathbf{M_x}$	90 in.-lbs. [10.2 Nm]	54 in.-lbs. [6.2 Nm]
Maximum Moment $\mathbf{M_y}$	56 in.-lbs. [6.4 Nm]	33 in.-lbs. [3.8 Nm]
Maximum Moment $\mathbf{M_z}$	56 in.-lbs. [6.4 Nm]	33 in.-lbs. [3.8 Nm]
Distance to Bearing Centerline L	3.38 in. [86 mm]	

Accessory Mounting Technical Data



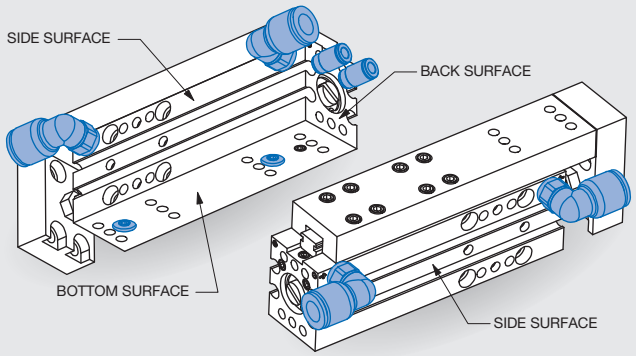
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



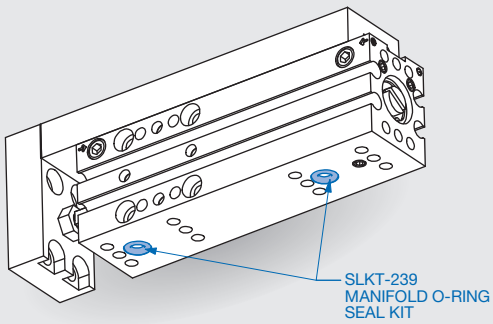
Plumbing Fittings

- Adjustable Flow Controls:
  - Thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm O.D. tubing
- Consult Factory for additional available plumbing fittings



Multiple Air Port Locations

- 2 standard M5 air port locations (both sides)
- Bottom and Back airports (M3) are plugged as supplied



Manifold O-ring Seals

- Available in Seal Kit
- Kit is supplied with all seals, plugs & wrenches needed

DIRECTCONNECT™

MINI BALL RAIL SLIDE DLM-07M-50
DIRECTCONNECT MODULAR SERIES

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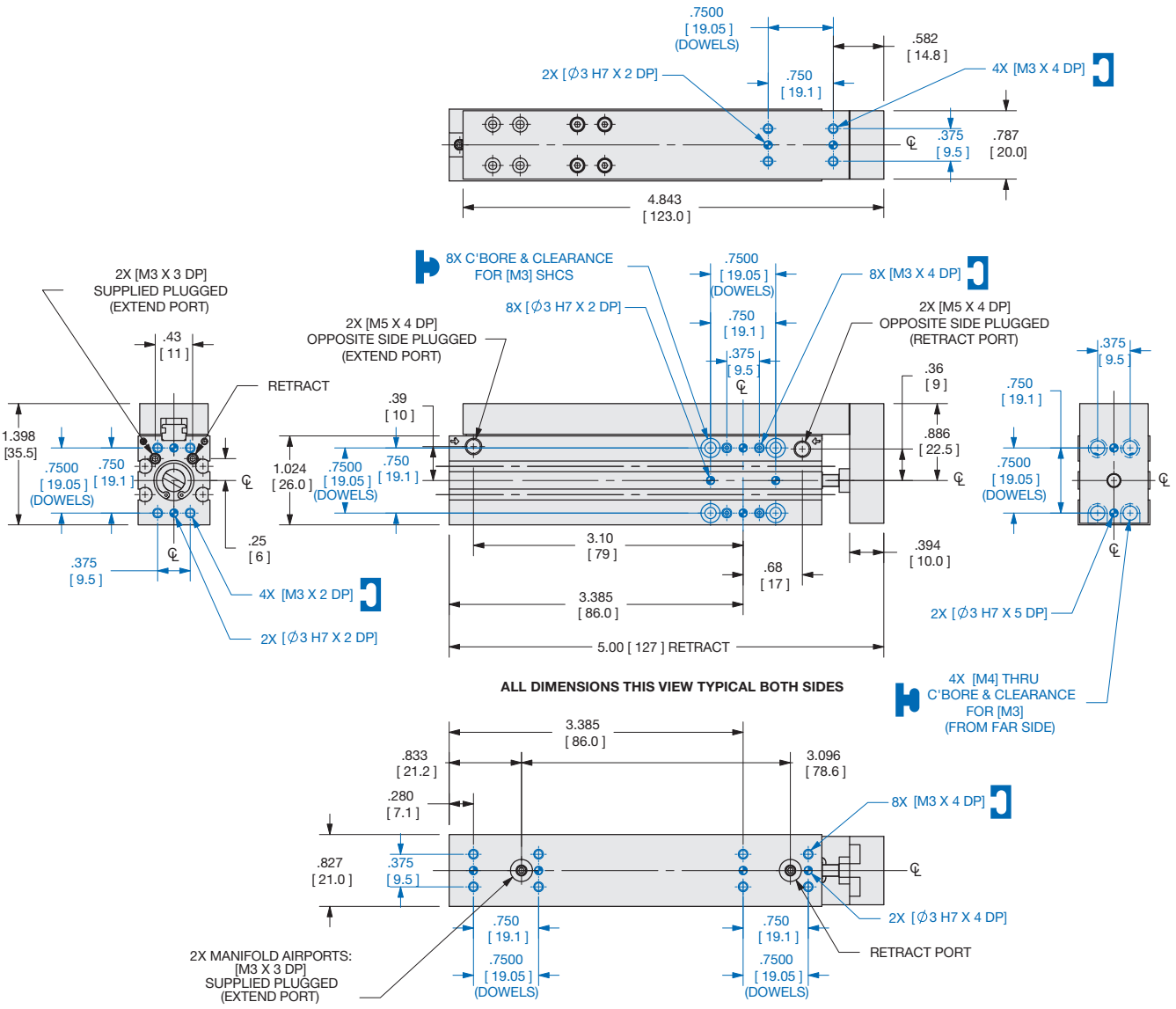

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Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | BODY SIZE (See Below) | PRECISION STOPS

DLM-07M - 50 - [ ] - D - P

STROKE (See Below) | DOUBLE BEARINGS

BODY SIZE 50
STROKE (mm) 38, 40, 45, 50
DOUBLE BEARING D
PRECISION STOPS P

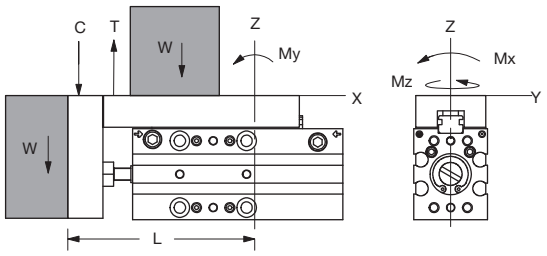
SAMPLE ORDER: DLM-07M-50-45-D-P
Ex: DLM-07M Mini Ball Rail Slide, -50 Body Size, 45mm Stroke, Double Ball Bearings, Precision Stops

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1-4
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1-4
PNP Magneto Resistive Sensor 90º Barrel (with Qk. Disc)*	OHSP-011	1-4
NPN Magneto Resistive Sensor 90º Barrel (with Qk. Disc.)*	OHSN-011	1-4
Quick Disconnect Cable (2 meters long)*	CABL-010	1-4
Quick Disconnect Cable (5 meters long)*	CABL-013	1-4

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit	SLKT-236	1
Manifold Seal Kit	SLKT-239	1
Adjustable Flow Control	VLVF-008	1 or 2

*Sensor and cable sold separately

Specifications	DLM-07M-50	
Thrust Force **F** @ 100 psi, 7 bar	15 lbs.	66 N
Max. Stroke	2.00 in.	50 mm
Stroke Reduction (return)	0.19 in.	5 mm
Weight	0.50 lbs.	0.23 Kg
Maximum Payload W	1.0 lbs.	0.45 Kg
Maximum Payload (-P Option)	0.5 lbs.	0.23 Kg
Cylinder Bore Ø	0.437 in.	11 mm
Temperature Range:	-30°~180° F	-35°~80° C
Actuation per 25mm of travel	0.07 sec.	
Linear accuracy per 25mm of travel	±0.0001 in.	±0.005 mm
Repeatability (-P Option)	±0.003 in.	±0.08 mm
Pressure Range	20-100 psi	1.4-7 bar
Valve required to actuate	4-way, 2-position	

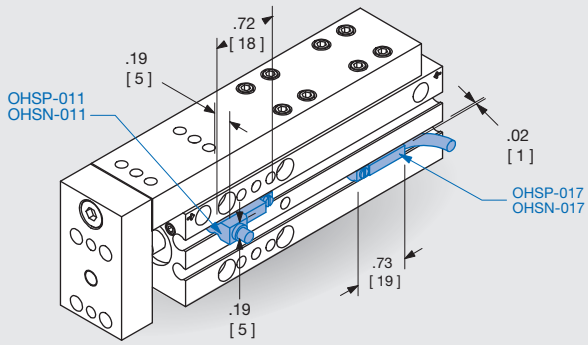


Flow Controls are recommended for nearly all applications

Loading Capacity

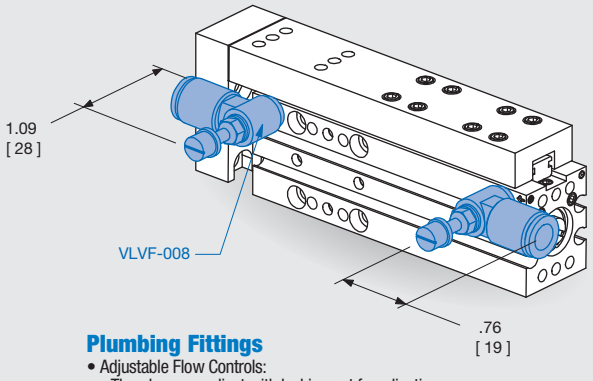
	Static	Dynamic
DLM-07M-50		
Maximum Tensile **T**	110 lbs. [490 N]	67 lbs. [301 N]
Maximum Compressive **C**	110 lbs. [490 N]	67 lbs. [301 N]
Maximum Moment $\mathbf{M_x}$	45 in.-lbs. [5.1 Nm]	27 in.-lbs. [3.1 Nm]
Maximum Moment $\mathbf{M_y}$	28 in.-lbs. [3.2 Nm]	16 in.-lbs. [1.9 Nm]
Maximum Moment $\mathbf{M_z}$	28 in.-lbs. [3.2 Nm]	16 in.-lbs. [1.9 Nm]
Distance to Bearing Centerline L	3.37 in. [86 mm]	
DLM-07M-50-D		
Maximum Tensile **T**	220 lbs. [980 N]	135 lbs. [602 N]
Maximum Compressive **C**	220 lbs. [980 N]	135 lbs. [602 N]
Maximum Moment $\mathbf{M_x}$	90 in.-lbs. [10.2 Nm]	54 in.-lbs. [6.2 Nm]
Maximum Moment $\mathbf{M_y}$	56 in.-lbs. [6.4 Nm]	33 in.-lbs. [3.8 Nm]
Maximum Moment $\mathbf{M_z}$	56 in.-lbs. [6.4 Nm]	33 in.-lbs. [3.8 Nm]
Distance to Bearing Centerline L	3.86 in. [98 mm]	

Accessory Mounting Technical Data



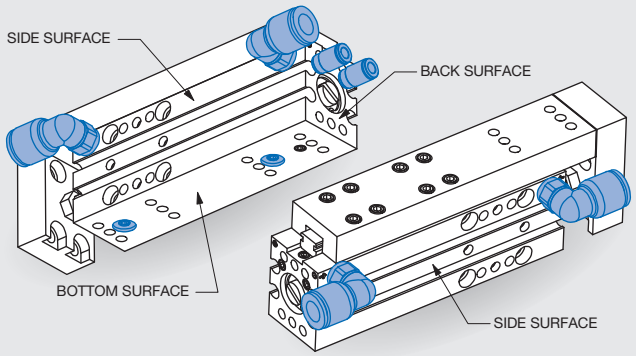
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



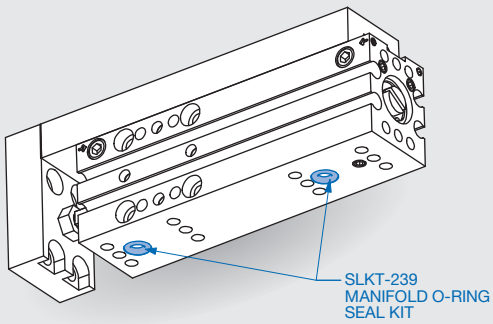
Plumbing Fittings

- Adjustable Flow Controls:
  - Thumb screw adjust with locking nut for adjusting actuation time
  - Available for 1/4" O.D. or 6mm O.D. tubing
- Consult Factory for additional available plumbing fittings



Multiple Air Port Locations

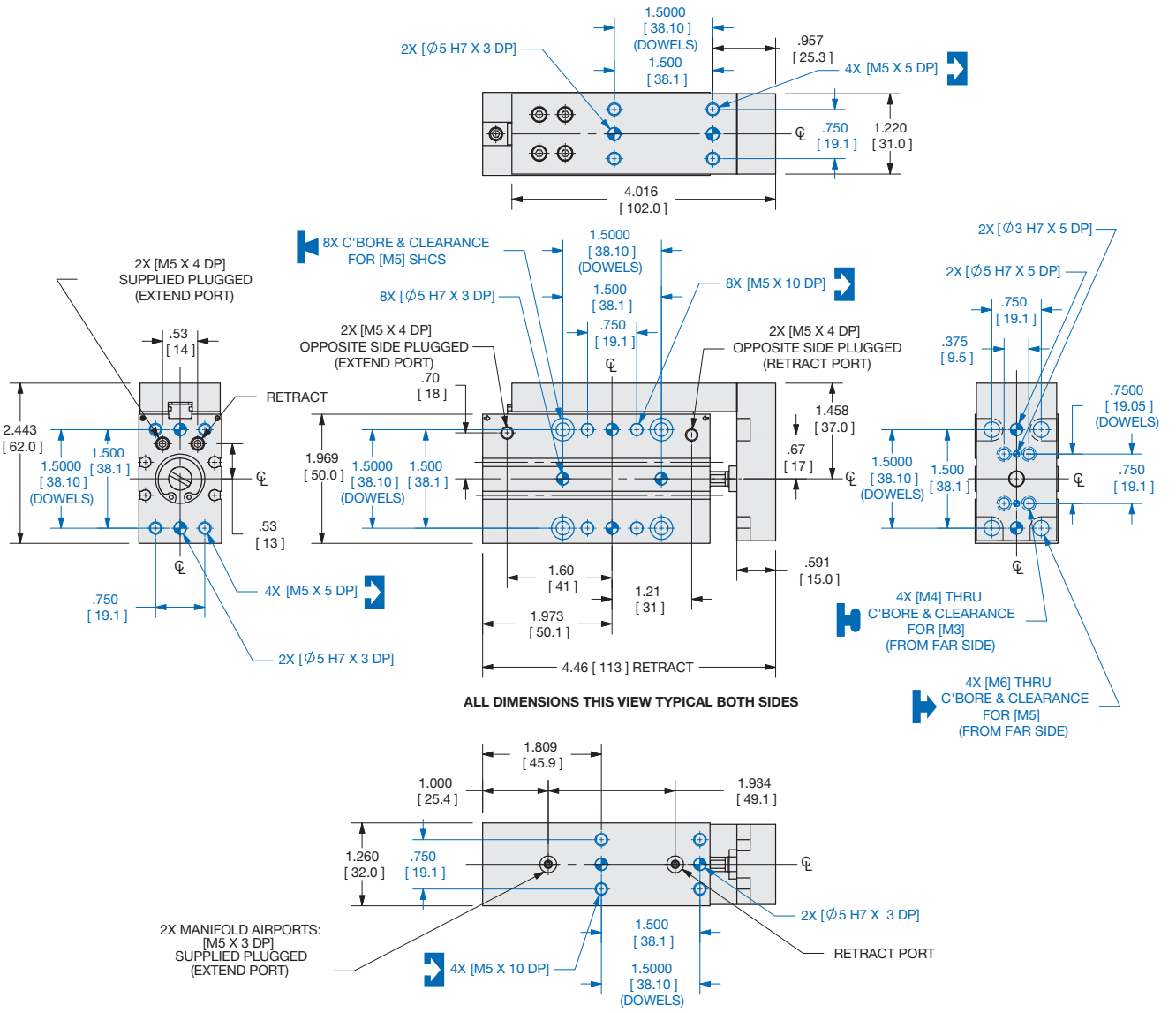
- 2 standard M5 air port locations (both sides)
- Bottom and Back airports (M3) are plugged as supplied



Manifold O-ring Seals

- Available in Seal Kit
- Kit is supplied with all seals, plugs & wrenches needed

MINI BALL RAIL SLIDE DLM-09M-25
DIRECTCONNECT MODULAR SERIES



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL	BODY SIZE (See Below)		PRECISION STOPS
DLM-09M	- 25	- [ ]	- P

STROKE (See Below)

BODY SIZE 25

STROKE (mm) 5, 10, 15, 20, 25

PRECISION STOPS P

SAMPLE ORDER: DLM-09M-25-15-P

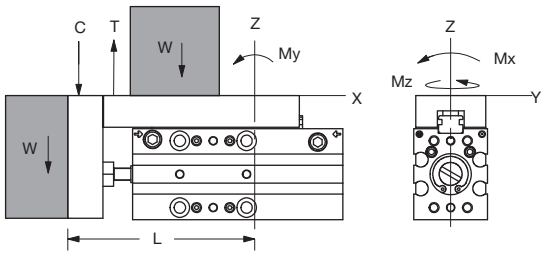
Ex: DLM-09M Mini Ball Rail Slide, -25 Body Size, 15mm Stroke, Precision Stops

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1-4
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1-4
PNP Magneto Resistive Sensor 90º Barrel (with Qk. Disc)*	OHSP-011	1-4
NPN Magneto Resistive Sensor 90º Barrel (with Qk. Disc.)*	OHSN-011	1-4
Quick Disconnect Cable (2 meters long)*	CABL-010	1-4
Quick Disconnect Cable (5 meters long)*	CABL-013	1-4

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit	SLKT-237	1
Manifold Seal Kit	SLKT-240	1
Adjustable Flow Control	VLVF-008	1 or 2

*Sensor and cable sold separately

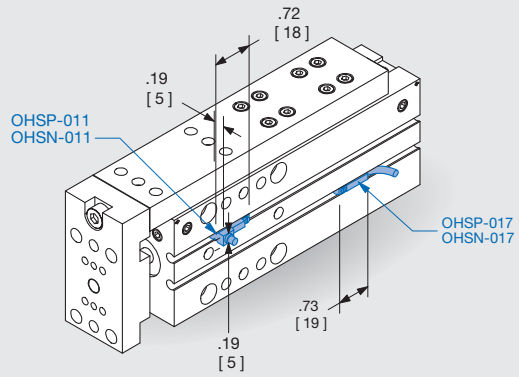
Specifications	DLM-09M-25	
Thrust Force **F** @ 100 psi, 7 bar	31 lbs.	138 N
Max. Stroke	1.00 in.	25 mm
Stroke Reduction (return)	0.19 in.	5 mm
Weight	1.08 lbs.	0.49 Kg
Maximum Payload W	2.0 lbs.	0.90 Kg
Maximum Payload (-P Option)	1.0 lbs.	0.45 Kg
Cylinder Bore Ø	0.630 in.	16 mm
Temperature Range:	-30°~180° F	-35°~80° C
Actuation per 25mm of travel	0.10 sec.	
Linear accuracy per 25mm of travel	±0.0001 in.	±0.005 mm
Repeatability (-P Option)	±0.003 in.	±0.08 mm
Pressure Range	20-100 psi	1.4-7 bar
Valve required to actuate	4-way, 2-position	



Flow Controls are recommended for nearly all applications

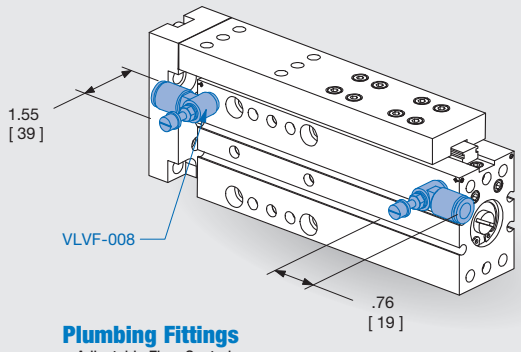
Loading Capacity	Static	Dynamic
DLM-09M-25		
Maximum Tensile **T**	165 lbs. [735 N]	92 lbs. [413 N]
Maximum Compressive **C**	165 lbs. [735 N]	92 lbs. [413 N]
Maximum Moment **Mx**	84 in.-lbs. [9.6 Nm]	47 in.-lbs. [5.4 Nm]
Maximum Moment **My**	56 in.-lbs. [6.4 Nm]	31 in.-lbs. [3.6 Nm]
Maximum Moment **Mz**	56 in.-lbs. [6.4 Nm]	31 in.-lbs. [3.6 Nm]
Distance to Bearing Centerline L	3.40 in. [86 mm]	

Accessory Mounting Technical Data



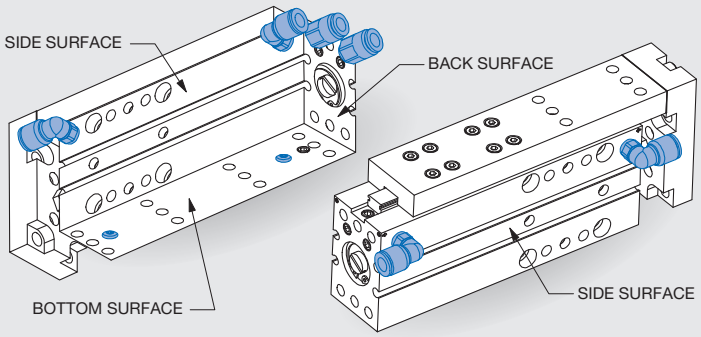
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



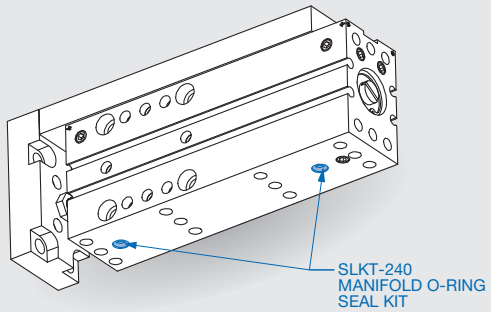
Plumbing Fittings

- Adjustable Flow Controls:
  - Thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm O.D. tubing
- Consult Factory for additional available plumbing fittings



Multiple Air Port Locations

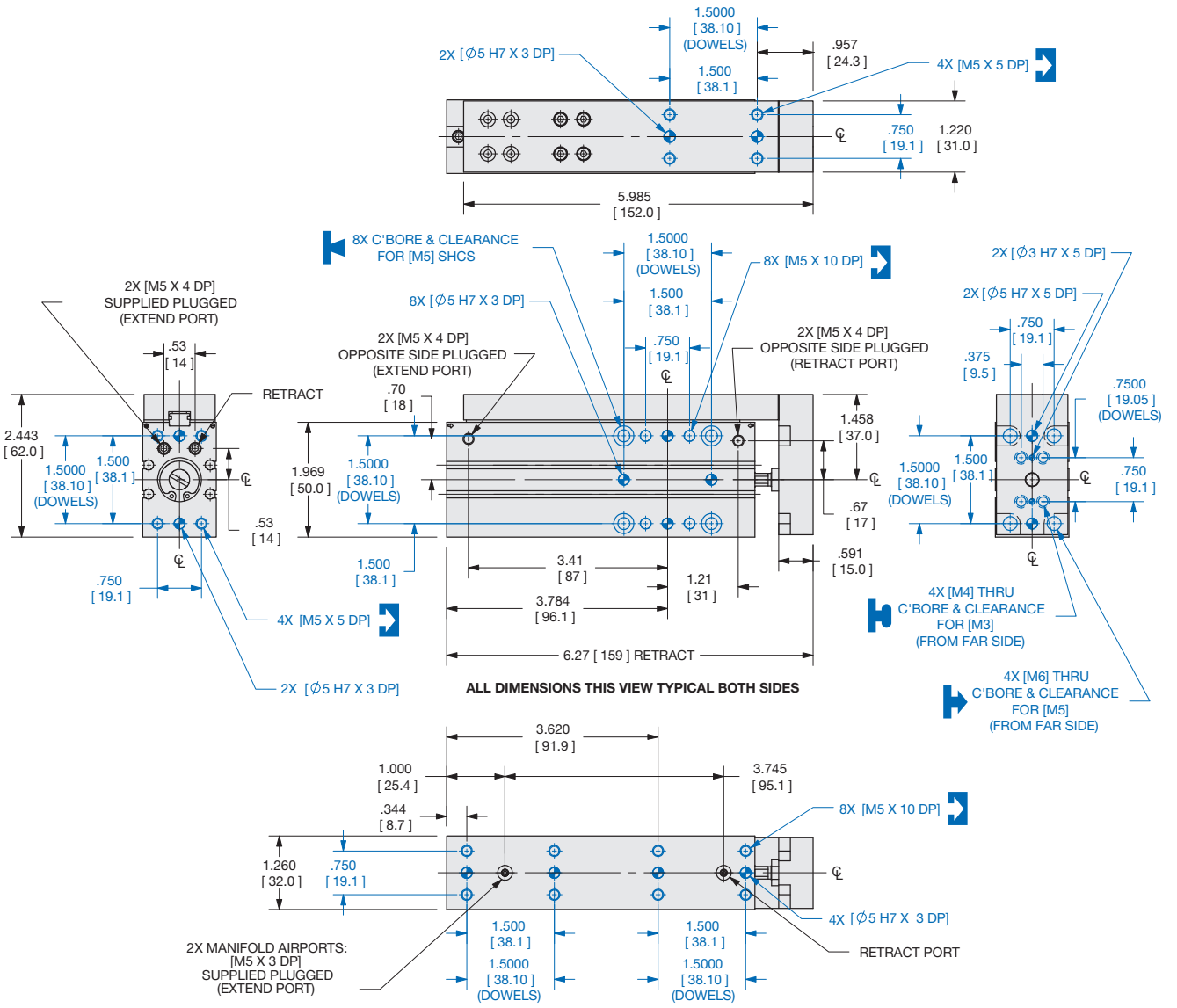
- 2 standard M5 air port locations (both sides)
- Bottom and Back airports (M3) are plugged as supplied



Manifold O-ring Seals

- Available in Seal Kit
- Kit is supplied with all seals, plugs & wrenches needed

MINI BALL RAIL SLIDE DLM-09M-50
DIRECTCONNECT MODULAR SERIES



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | BODY SIZE (See Below) | PRECISION STOPS | STROKE (See Below) | DOUBLE BEARINGS

DLM-09M - 50 - [ ] - D - P

BODY SIZE	**50**
STROKE	(mm) **25, 30, 35, 40, 45, 50**
DOUBLE BEARING	**D**
PRECISION STOPS	**P**

SAMPLE ORDER: DLM-09M-50-50-D

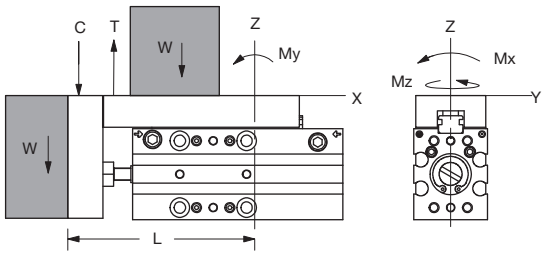
Ex: DLM-09M Mini Ball Rail Slide, -50 Body Size, 50mm Stroke, Double Ball Bearings

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	**OHSP-017**	**1-4**
NPN Magneto Resistive Sensor with Quick Disconnect*	**OHSN-017**	**1-4**
PNP Magneto Resistive Sensor 90º Barrel (with Qk. Disc)*	**OHSP-011**	**1-4**
NPN Magneto Resistive Sensor 90º Barrel (with Qk. Disc.)*	**OHSN-011**	**1-4**
Quick Disconnect Cable (2 meters long)*	**CABL-010**	**1-4**
Quick Disconnect Cable (5 meters long)*	**CABL-013**	**1-4**

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit	**SLKT-237**	**1**
Manifold Seal Kit	**SLKT-240**	**1**
Adjustable Flow Control	**VLVF-008**	**1 or 2**

*Sensor and cable sold separately

Specifications	DLM-09M-50	
Thrust Force **F** @ 100 psi, 7 bar	31 lbs.	138 N
Max. Stroke	2.00 in.	50 mm
Stroke Reduction (return)	0.19 in.	5 mm
Weight	1.41 lbs.	0.64 Kg
Maximum Payload W	2.0 lbs.	0.90 Kg
Maximum Payload (-P Option)	1.0 lbs.	0.45 Kg
Cylinder Bore Ø	0.630 in.	16 mm
Temperature Range	-30°~180° F	-35°~80° C
Actuation per 25mm of travel	0.10 sec.	
Linear accuracy per 25mm of travel	±0.0001 in.	±0.005 mm
Repeatability (-P Option)	±0.003 in.	±0.08 mm
Pressure Range	20-100 psi	1.4-7 bar
Valve required to actuate	4-way, 2-position	

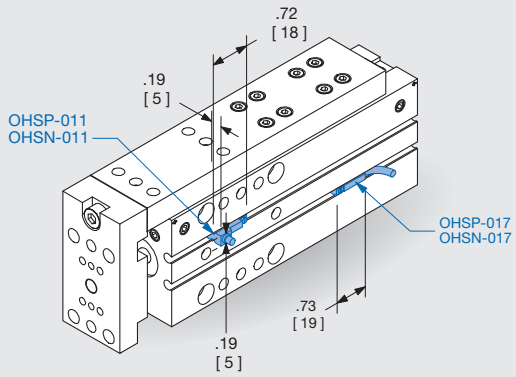


Flow Controls are recommended for nearly all applications

Loading Capacity

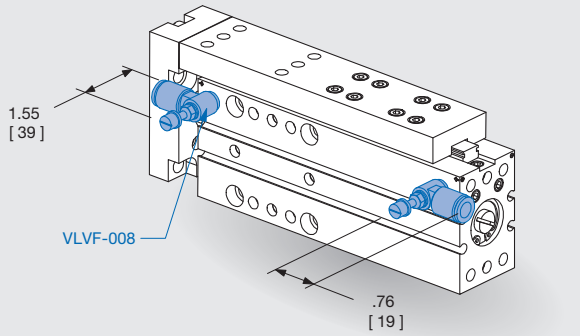
	Static	Dynamic
DLM-09M-50		
Maximum Tensile **T**	165 lbs. [735 N]	92 lbs. [413 N]
Maximum Compressive **C**	165 lbs. [735 N]	92 lbs. [413 N]
Maximum Moment $\mathbf{M_X}$	84 in.-lbs. [9.6 Nm]	47 in.-lbs. [5.4 Nm]
Maximum Moment $\mathbf{M_Y}$	56 in.-lbs. [6.4 Nm]	31 in.-lbs. [3.6 Nm]
Maximum Moment $\mathbf{M_Z}$	56 in.-lbs. [6.4 Nm]	31 in.-lbs. [3.6 Nm]
Distance to Bearing Centerline L	4.13 in. [105 mm]	
DLM-09M-50-D		
Maximum Tensile **T**	330 lbs. [1470 N]	185 lbs. [826 N]
Maximum Compressive **C**	330 lbs. [1470 N]	185 lbs. [826 N]
Maximum Moment $\mathbf{M_X}$	169 in.-lbs. [19.2 Nm]	95 in.-lbs. [10.8 Nm]
Maximum Moment $\mathbf{M_Y}$	113 in.-lbs. [12.8 Nm]	63 in.-lbs. [7.2 Nm]
Maximum Moment $\mathbf{M_Z}$	113 in.-lbs. [12.8 Nm]	63 in.-lbs. [7.2 Nm]
Distance to Bearing Centerline L	4.75 in. [121 mm]	

Accessory Mounting Technical Data



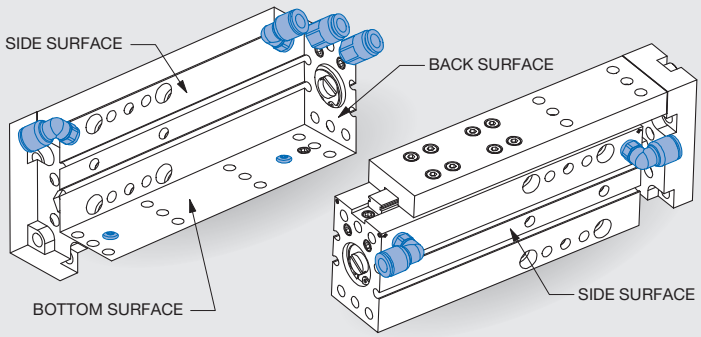
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



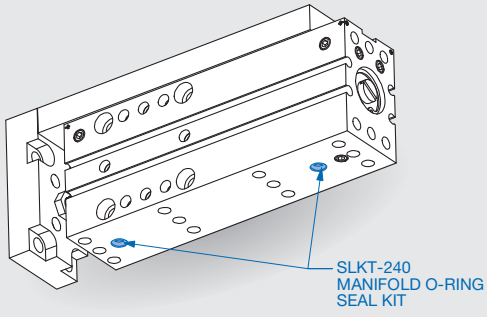
Plumbing Fittings

- Adjustable Flow Controls:
  - Thumb screw adjust with locking nut for adjusting actuation time
  - Available 6mm O.D. tubing
- Consult Factory for additional available plumbing fittings



Multiple Air Port Locations

- 2 standard M5 air port locations (both sides)
- Bottom and Back airports (M3) are plugged as supplied

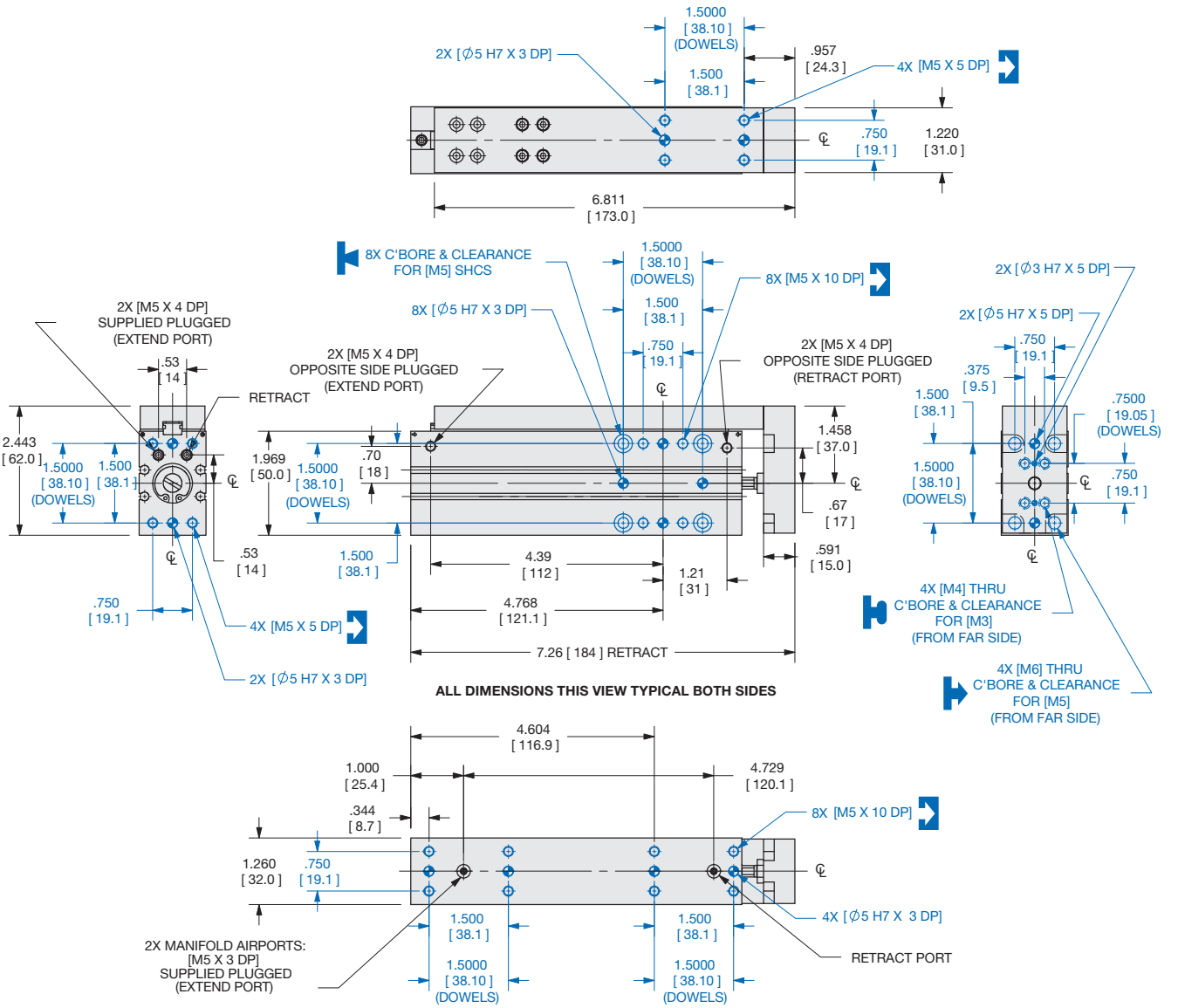


Manifold O-ring Seals

- Available in Seal Kit
- Kit is supplied with all seals, plugs & wrenches needed

MINI BALL RAIL SLIDE DLM-09M-75
DIRECTCONNECT MODULAR SERIES

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | BODY SIZE (See Below) | PRECISION STOPS | STROKE (See Below) | DOUBLE BEARINGS

DLM-09M - 75 - [ ] - D - P

BODY SIZE 75
STROKE (mm) 50, 55, 60, 65, 70, 75
DOUBLE BEARING D
PRECISION STOPS P

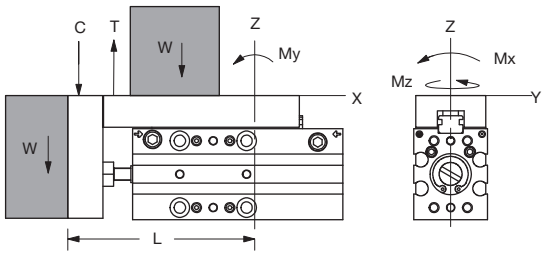
SAMPLE ORDER: DLM-09M-75-75-D-P
Ex: DLM-09M Mini Ball Rail Slide, -75 Body Size, 75mm Stroke, Double Ball Bearings, Precision Stops

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1-4
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1-4
PNP Magneto Resistive Sensor 90º Barrel (with Qk. Disc)*	OHSP-011	1-4
NPN Magneto Resistive Sensor 90º Barrel (with Qk. Disc.)*	OHSN-011	1-4
Quick Disconnect Cable (2 meters long)*	CABL-010	1-4
Quick Disconnect Cable (5 meters long)*	CABL-013	1-4

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit	SLKT-237	1
Manifold Seal Kit	SLKT-240	1
Adjustable Flow Control	VLVF-008	1 or 2

*Sensor and cable sold separately

Specifications	DLM-09M-75	
Thrust Force **F** @ 100 psi, 7 bar	31 lbs.	138 N
Max. Stroke	3.00 in.	150 mm
Stroke Reduction (return)	0.19 in.	5 mm
Weight	1.78 lbs.	0.81 Kg
Maximum Payload W	2.0 lbs.	0.90 Kg
Maximum Payload (-P Option)	1.0 lbs.	0.45 Kg
Cylinder Bore Ø	0.630 in.	16 mm
Temperature Range	-30°~180° F	-35°~80° C
Actuation per 25mm of travel	0.10 sec.	
Linear accuracy per 25mm of travel	±0.0001 in.	±0.005 mm
Repeatability (-P Option)	±0.003 in.	±0.08 mm
Pressure Range	20-100 psi	1.4-7 bar
Valve required to actuate	4-way, 2-position	

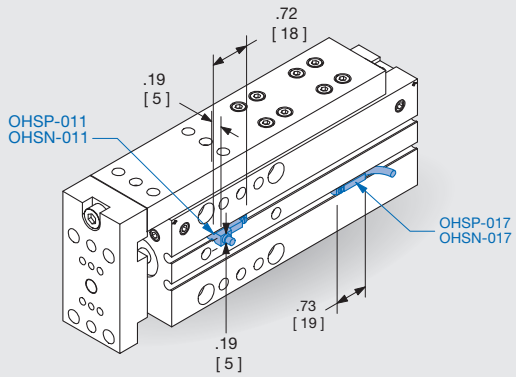


Flow Controls are recommended for nearly all applications

Loading Capacity

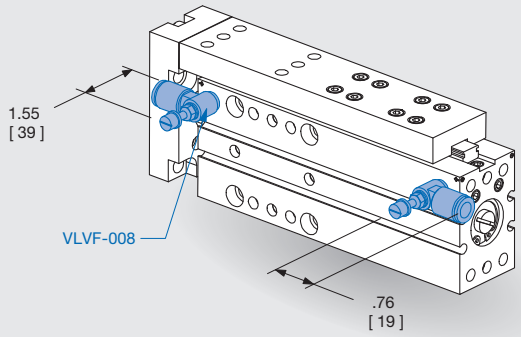
	Static	Dynamic
DLM-09M-75		
Maximum Tensile **T**	165 lbs. [735 N]	92 lbs. [413 N]
Maximum Compressive **C**	165 lbs. [735 N]	92 lbs. [413 N]
Maximum Moment $\mathbf{M_x}$	84 in.-lbs. [9.6 Nm]	47 in.-lbs. [5.4 Nm]
Maximum Moment $\mathbf{M_y}$	56 in.-lbs. [6.4 Nm]	31 in.-lbs. [3.6 Nm]
Maximum Moment $\mathbf{M_z}$	56 in.-lbs. [6.4 Nm]	31 in.-lbs. [3.6 Nm]
Distance to Bearing Centerline L	4.95 in. [126 mm]	
DLM-09M-75-D		
Maximum Tensile **T**	330 lbs. [1470 N]	185 lbs. [826 N]
Maximum Compressive **C**	330 lbs. [1470 N]	185 lbs. [826 N]
Maximum Moment $\mathbf{M_x}$	169 in.-lbs. [19.2 Nm]	95 in.-lbs. [10.8 Nm]
Maximum Moment $\mathbf{M_y}$	113 in.-lbs. [12.8 Nm]	63 in.-lbs. [7.2 Nm]
Maximum Moment $\mathbf{M_z}$	113 in.-lbs. [12.8 Nm]	63 in.-lbs. [7.2 Nm]
Distance to Bearing Centerline L	5.58 in. [142 mm]	

Accessory Mounting Technical Data



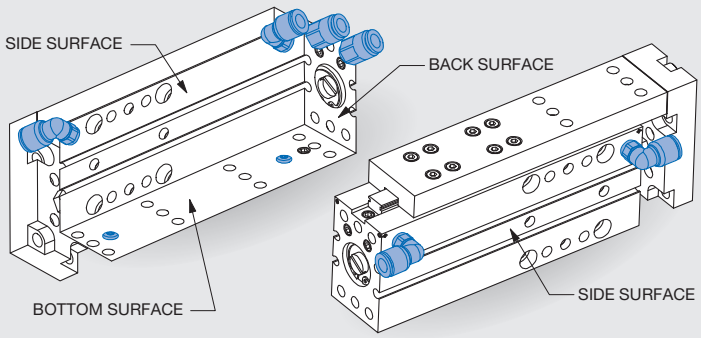
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



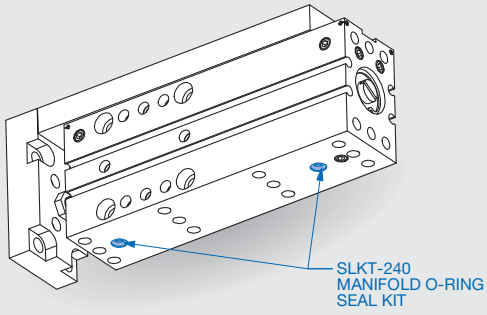
Plumbing Fittings

- Adjustable Flow Controls:
  - Thumb screw adjust with locking nut for adjusting actuation time
  - Available 6mm O.D. tubing
- Consult Factory for additional available plumbing fittings



Multiple Air Port Locations

- 2 standard M5 air port locations (both sides)
- Bottom and Back airports (M3) are plugged as supplied

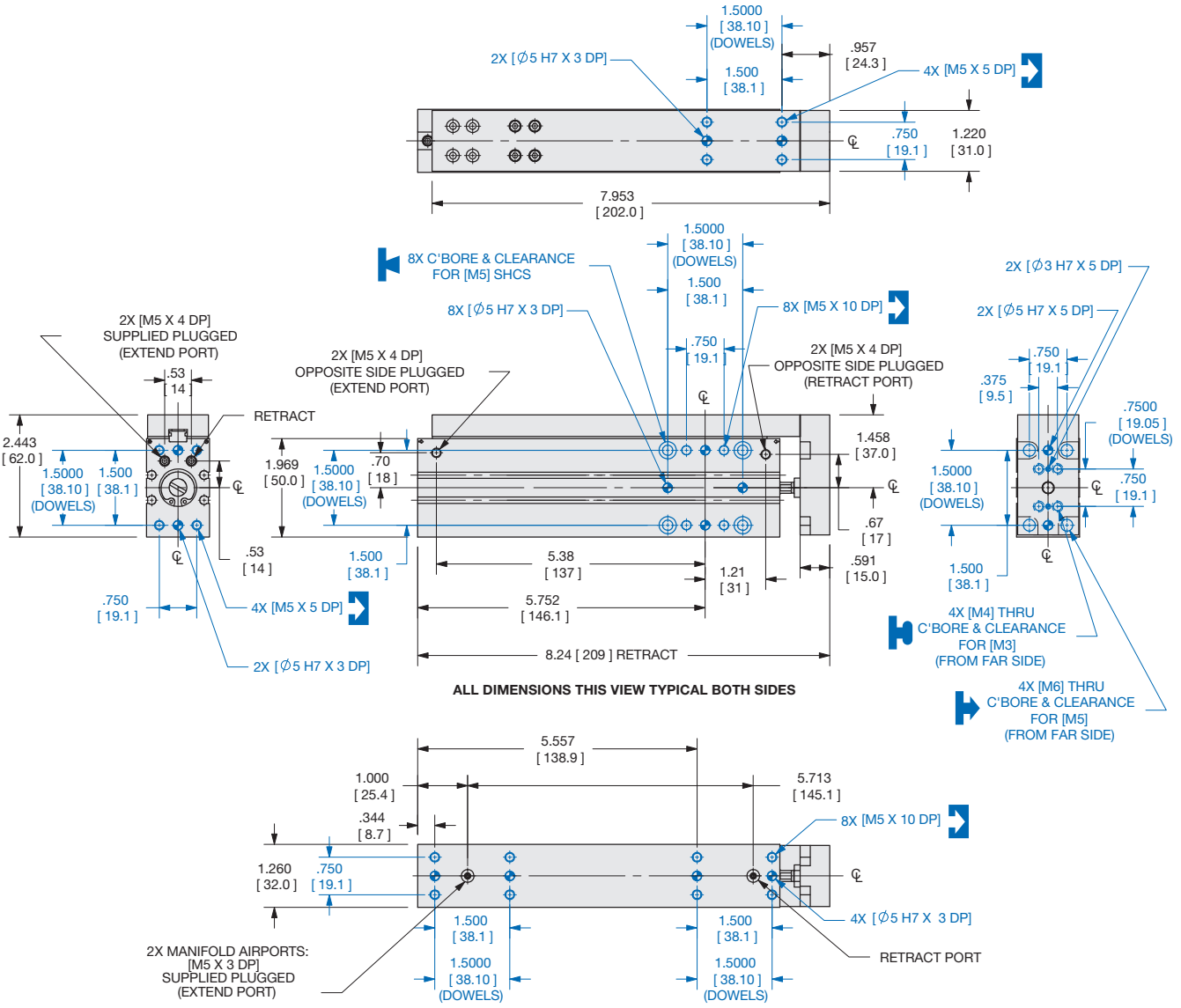


Manifold O-ring Seals

- Available in Seal Kit
- Kit is supplied with all seals, plugs & wrenches needed

MINI BALL RAIL SLIDE DLM-09M-100
DIRECTCONNECT MODULAR SERIES

Robohand



ALL DIMENSIONS THIS VIEW TYPICAL BOTH SIDES

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL	BODY SIZE (See Below)	PRECISION STOPS
DLM-09M	- 100 - [ ]	- D - P
	STROKE (See Below)	DOUBLE BEARINGS

BODY SIZE 100

STROKE (mm)
75, 80, 85, 90, 95, 100

DOUBLE BEARING D

PRECISION STOPS P

SAMPLE ORDER: DLM-09M-100-85-D-P

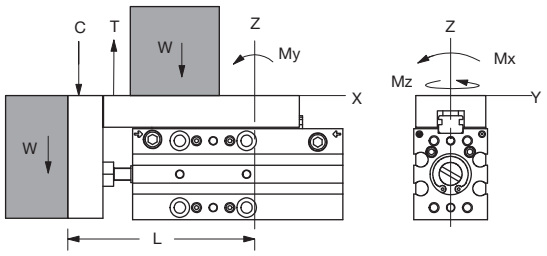
Ex: DLM-09M Mini Ball Rail Slide, -100 Body Size, 85mm Stroke, Double Ball Bearings, Precision Stops

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1-4
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1-4
PNP Magneto Resistive Sensor 90º Barrel (with Qk. Disc)*	OHSP-011	1-4
NPN Magneto Resistive Sensor 90º Barrel (with Qk. Disc.)*	OHSN-011	1-4
Quick Disconnect Cable (2 meters long)*	CABL-010	1-4
Quick Disconnect Cable (5 meters long)*	CABL-013	1-4

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit	SLKT-237	1
Manifold Seal Kit	SLKT-240	1
Adjustable Flow Control	VLVF-008	1 or 2

*Sensor and cable sold separately

Specifications	DLM-09M-100	
Thrust Force **F** @ 100 psi, 7 bar	31 lbs.	138 N
Max. Stroke	4.00 in.	200 mm
Stroke Reduction (return)	0.19 in.	5 mm
Weight	2.13 lbs.	0.97 Kg
Maximum Payload W	2.0 lbs.	0.90 Kg
Maximum Payload (-P Option)	1.0 lbs.	0.45 Kg
Cylinder Bore Ø	0.630 in.	16 mm
Temperature Range:	-30°~180° F	-35°~80° C
Actuation per 25mm of travel	0.10 sec.	
Linear accuracy per 25mm of travel	±0.0001 in.	±0.005 mm
Repeatability (-P Option)	±0.003 in.	±0.08 mm
Pressure Range	20-100 psi	1.4-7 bar
Valve required to actuate	4-way, 2-position	

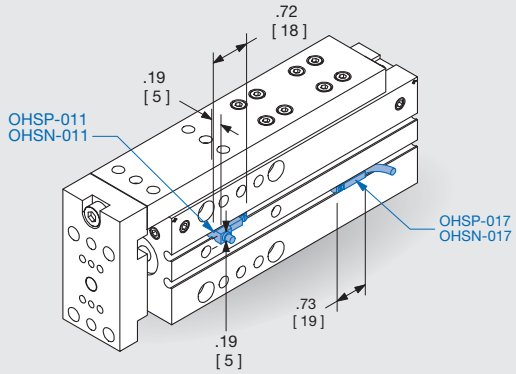


Flow Controls are recommended for nearly all applications

Loading Capacity

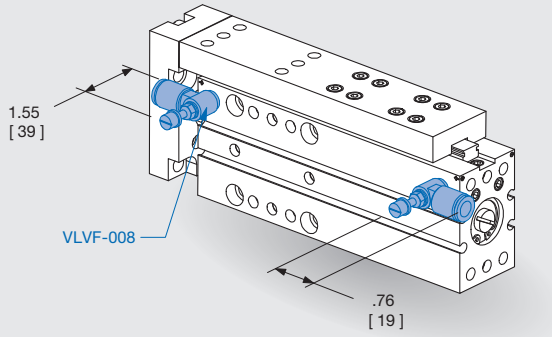
	Static	Dynamic
DLM-09M-100		
Maximum Tensile **T**	165 lbs. [735 N]	92 lbs. [413 N]
Maximum Compressive **C**	165 lbs. [735 N]	92 lbs. [413 N]
Maximum Moment M_x	84 in.-lbs. [9.6 Nm]	47 in.-lbs. [5.4 Nm]
Maximum Moment M_y	56 in.-lbs. [6.4 Nm]	31 in.-lbs. [3.6 Nm]
Maximum Moment M_z	56 in.-lbs. [6.4 Nm]	31 in.-lbs. [3.6 Nm]
Distance to Bearing Centerline L	6.10 in. [155 mm]	
DLM-09M-100-D		
Maximum Tensile **T**	330 lbs. [1470 N]	185 lbs. [826 N]
Maximum Compressive **C**	330 lbs. [1470 N]	185 lbs. [826 N]
Maximum Moment M_x	169 in.-lbs. [19.2 Nm]	95 in.-lbs. [10.8 Nm]
Maximum Moment M_y	113 in.-lbs. [12.8 Nm]	63 in.-lbs. [7.2 Nm]
Maximum Moment M_z	113 in.-lbs. [12.8 Nm]	63 in.-lbs. [7.2 Nm]
Distance to Bearing Centerline L	6.72 in. [171 mm]	

Accessory Mounting Technical Data



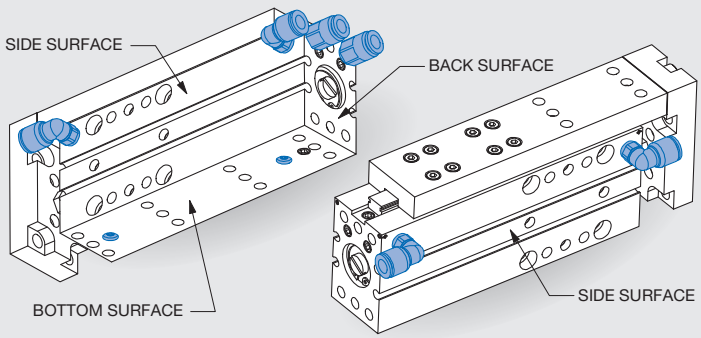
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



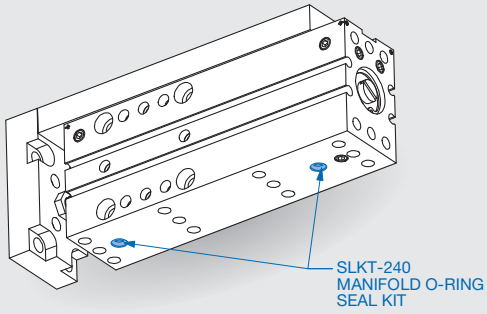
Plumbing Fittings

- Adjustable Flow Controls:
  - Thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm O.D. tubing
- Consult Factory for additional available plumbing fittings



Multiple Air Port Locations

- 2 standard M5 air port locations (both sides)
- Bottom and Back airports (M3) are plugged as supplied

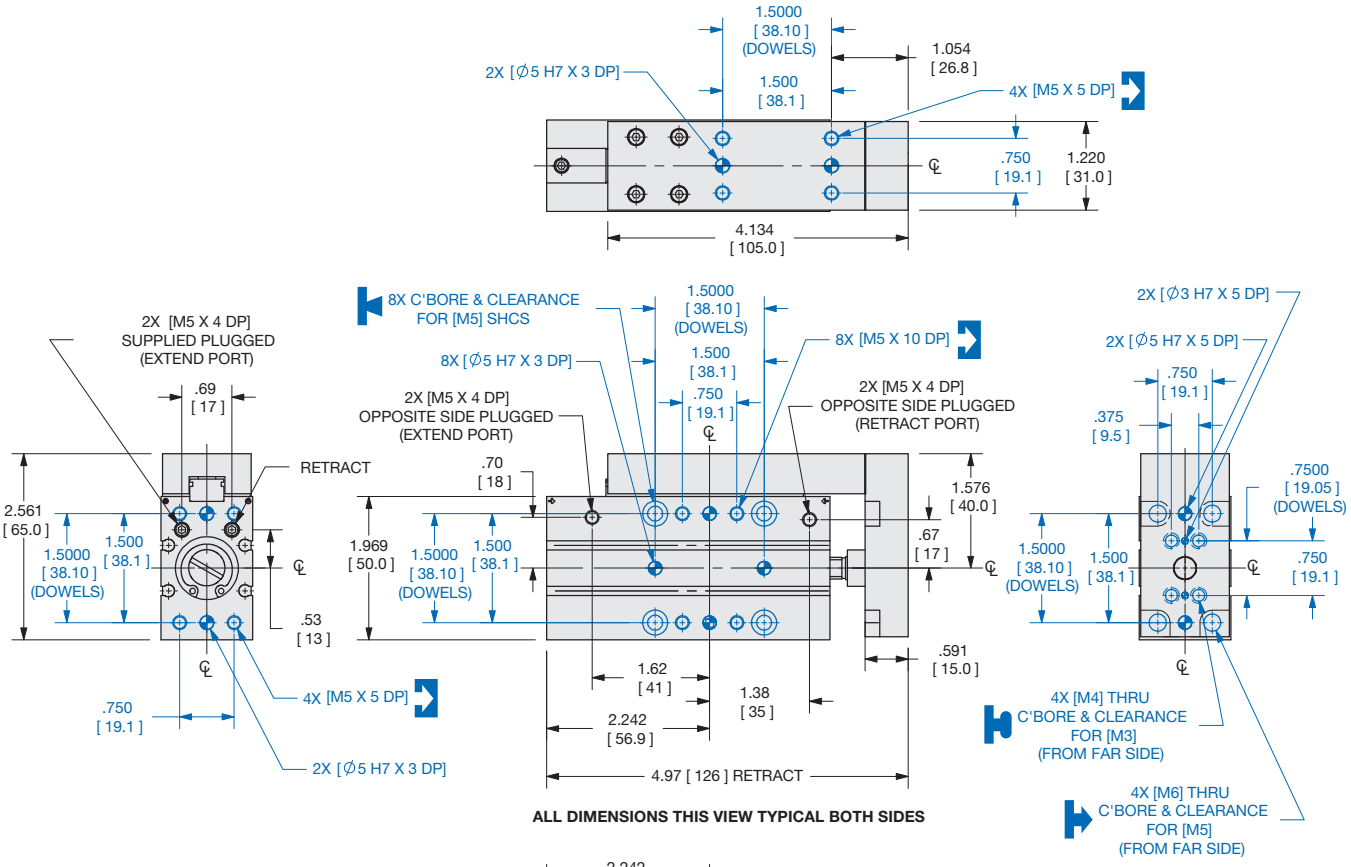


Manifold O-ring Seals

- Available in Seal Kit
- Kit is supplied with all seals, plugs & wrenches needed

MINI BALL RAIL SLIDE DLM-012M-25
DIRECTCONNECT MODULAR SERIES

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL: **DLM-12M** - BODY SIZE: **25** (See Below) - STROKE: **[ ]** (See Below) - PRECISION STOPS: **P**

BODY SIZE 25

STROKE (mm)
5, 10, 15, 20, 25

PRECISION STOPS P

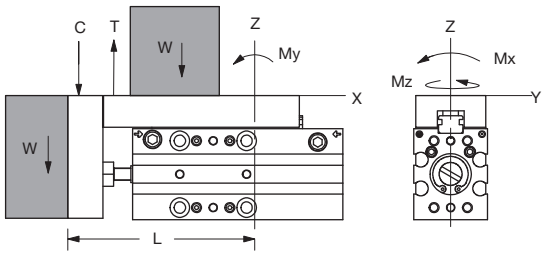
SAMPLE ORDER: DLM-12M-25-20-P
Ex: DLM-12M Mini Ball Rail Slide, -25 Body Size, 20mm Stroke, Precision Stops

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1-4
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1-4
PNP Magneto Resistive Sensor 90º Barrel (with Qk. Disc)*	OHSP-011	1-4
NPN Magneto Resistive Sensor 90º Barrel (with Qk. Disc.)*	OHSN-011	1-4
Quick Disconnect Cable (2 meters long)*	CABL-010	1-4
Quick Disconnect Cable (5 meters long)*	CABL-013	1-4

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit	SLKT-238	1
Manifold Seal Kit	SLKT-240	1
Adjustable Flow Control	VLVF-008	1 or 2

*Sensor and cable sold separately

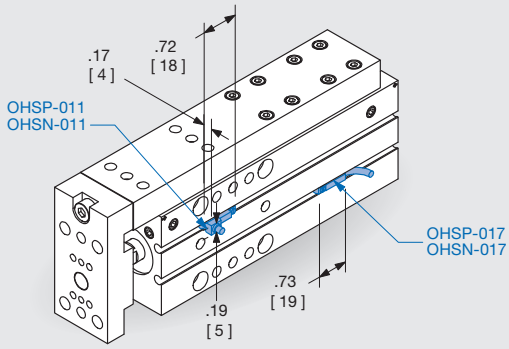
Specifications	DLM-12M-25	
Thrust Force **F** @ 100 psi, 7 bar	51 lbs.	230 N
Max. Stroke	1.00 in.	25 mm
Stroke Reduction (return)	0.19 in.	5 mm
Weight	1.18 lbs.	0.54 Kg
Maximum Payload W	4.0 lbs.	1.81 Kg
Maximum Payload (-P Option)	2.0 lbs.	0.90 Kg
Cylinder Bore Ø	0.813 in.	22 mm
Temperature Range:	-30°~180° F	-35°~80° C
Actuation per 25mm of travel	0.14 sec.	
Linear accuracy per 25mm of travel	±0.0001 in.	±0.005 mm
Repeatability (-P Option)	±0.003 in.	±0.08 mm
Pressure Range	20-100 psi	1.4-7 bar
Valve required to actuate	4-way, 2-position	



Flow Controls are recommended for nearly all applications

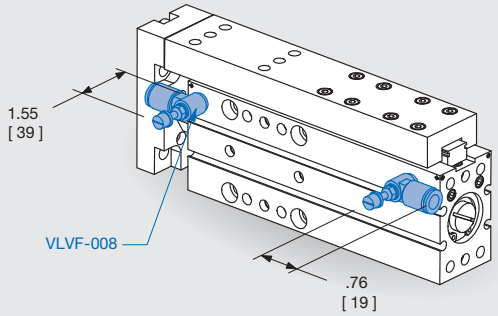
Loading Capacity	Static	Dynamic
DLM-12M-25		
Maximum Tensile **T**	273 lbs. [1214 N]	181 lbs. [808 N]
Maximum Compressive **C**	273 lbs. [1214 N]	181 lbs. [808 N]
Maximum Moment $\mathbf{M_x}$	182 in.-lbs. [20.6 Nm]	121 in.-lbs. [13.7 Nm]
Maximum Moment $\mathbf{M_y}$	104 in.-lbs. [11.8 Nm]	69 in.-lbs. [7.9 Nm]
Maximum Moment $\mathbf{M_z}$	104 in.-lbs. [11.8 Nm]	69 in.-lbs. [7.9 Nm]
Distance to Bearing Centerline L	3.45 in. [88 mm]	

Accessory Mounting Technical Data



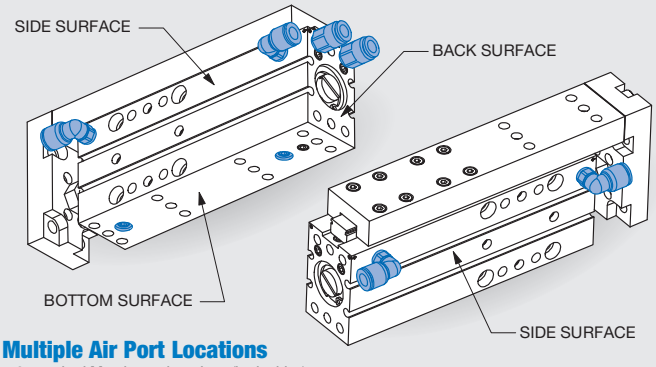
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



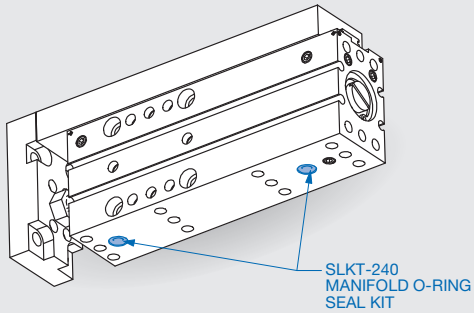
Plumbing Fittings

- Adjustable Flow Controls:
  - Thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm O.D. tubing
- Consult Factory for additional available plumbing fittings



Multiple Air Port Locations

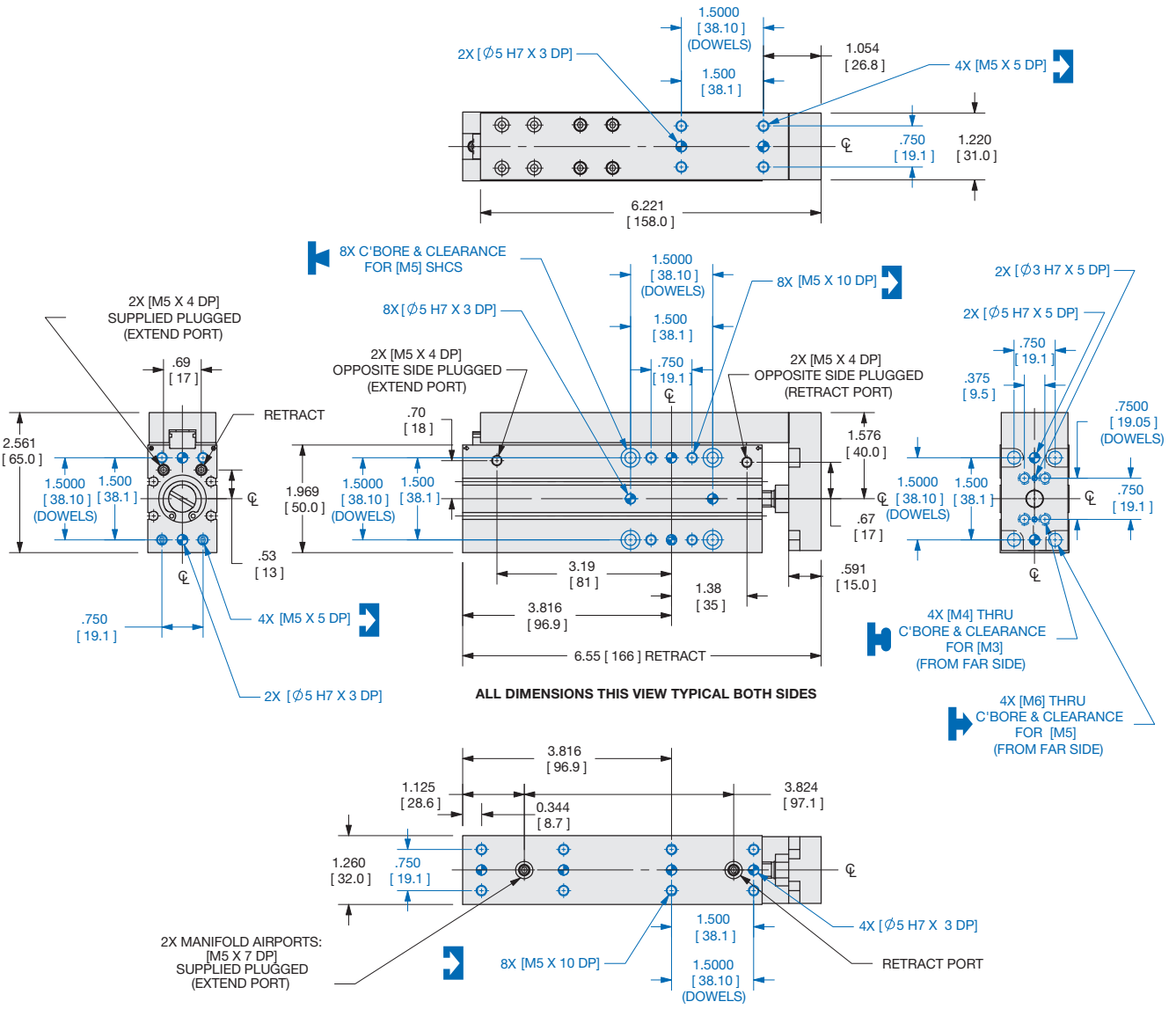
- 2 standard M5 air port locations (both sides)
- Bottom and Back airports (M3) are plugged as supplied



Manifold O-ring Seals

- Available in Seal Kit
- Kit is supplied with all seals, plugs & wrenches needed

MINI BALL RAIL SLIDE DLM-12M-50
DIRECTCONNECT MODULAR SERIES



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | BODY SIZE (See Below) | PRECISION STOPS

DLM-12M - 50 - [ ] - D - P

STROKE (See Below) | DOUBLE BEARINGS

BODY SIZE 50
STROKE (mm) 25, 30, 35, 40, 45, 50
DOUBLE BEARING D
PRECISION STOPS P

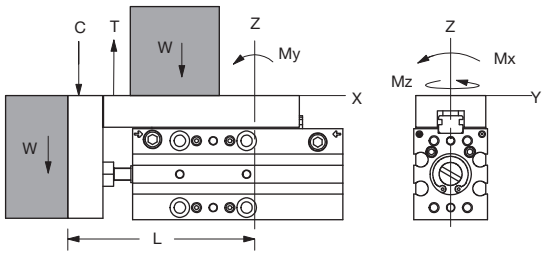
SAMPLE ORDER: DLM-12M-50-45-D-P
Ex: DLM-12M Mini Ball Rail Slide, -50 Body Size, 45mm Stroke, Double Ball Bearings, Precision Stops

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1-4
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1-4
PNP Magneto Resistive Sensor 90º Barrel (with Qk. Disc)*	OHSP-011	1-4
NPN Magneto Resistive Sensor 90º Barrel (with Qk. Disc.)*	OHSN-011	1-4
Quick Disconnect Cable (2 meters long)*	CABL-010	1-4
Quick Disconnect Cable (5 meters long)*	CABL-013	1-4

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit	SLKT-238	1
Manifold Seal Kit	SLKT-240	1
Adjustable Flow Control	VLVF-008	1 or 2

*Sensor and cable sold separately

Specifications	DLM-12M-50	
Thrust Force **F** @ 100 psi, 7 bar	51 lbs.	230 N
Max. Stroke	2.00 in.	50 mm
Stroke Reduction (return)	0.19 in.	5 mm
Weight	1.43 lbs.	0.65 Kg
Maximum Payload W	4.0 lbs.	1.81 Kg
Maximum Payload (-P Option)	2.0 lbs.	0.90 Kg
Cylinder Bore Ø	0.813 in.	22 mm
Temperature Range:	-30°~180° F	-35°~80° C
Actuation per 25mm of travel	0.14 sec.	
Linear accuracy per 25mm of travel	±0.0001 in.	±0.005 mm
Repeatability (-P Option)	±0.003 in.	±0.08 mm
Pressure Range	20-100 psi	1.4-7 bar
Valve required to actuate	4-way, 2-position	

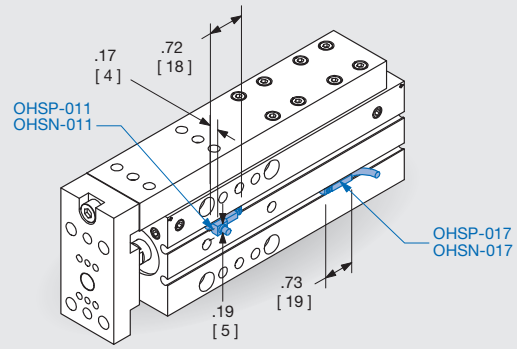


Flow Controls are recommended for nearly all applications

Loading Capacity

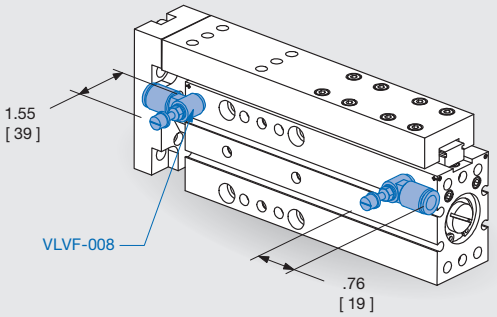
	Static	Dynamic
DLM-12M-50		
Maximum Tensile **T**	273 lbs. [1214 N]	181 lbs. [808 N]
Maximum Compressive **C**	273 lbs. [1214 N]	181 lbs. [808 N]
Maximum Moment $\mathbf{M_X}$	182 in.-lbs. [20.6 Nm]	121 in.-lbs. [13.7 Nm]
Maximum Moment $\mathbf{M_Y}$	104 in.-lbs. [11.8 Nm]	69 in.-lbs. [7.9 Nm]
Maximum Moment $\mathbf{M_Z}$	104 in.-lbs. [11.8 Nm]	69 in.-lbs. [7.9 Nm]
Distance to Bearing Centerline L	4.10 in. [104 mm]	
DLM-12M-50-D		
Maximum Tensile **T**	546 lbs. [2429 N]	363 lbs. [1617 N]
Maximum Compressive **C**	546 lbs. [2429 N]	363 lbs. [1617 N]
Maximum Moment $\mathbf{M_X}$	364 in.-lbs. [41.2 Nm]	95 in.-lbs. [27.4 Nm]
Maximum Moment $\mathbf{M_Y}$	208 in.-lbs. [23.6 Nm]	139 in.-lbs. [15.8 Nm]
Maximum Moment $\mathbf{M_Z}$	208 in.-lbs. [23.6 Nm]	139 in.-lbs. [15.8 Nm]
Distance to Bearing Centerline L	4.82 in. [122 mm]	

Accessory Mounting Technical Data



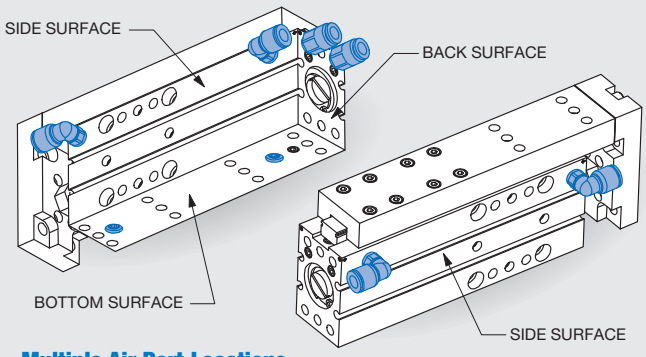
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



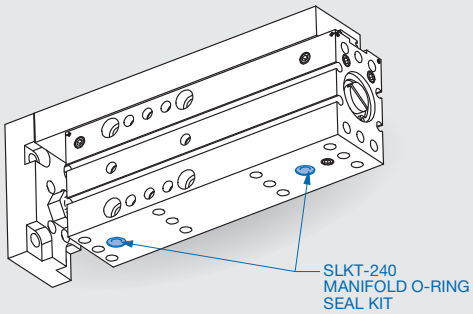
Plumbing Fittings

- Adjustable Flow Controls:
  - Thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm O.D. tubing
- Consult Factory for additional available plumbing fittings



Multiple Air Port Locations

- 2 standard M5 air port locations (both sides)
- Bottom and Back airports (M3) are plugged as supplied

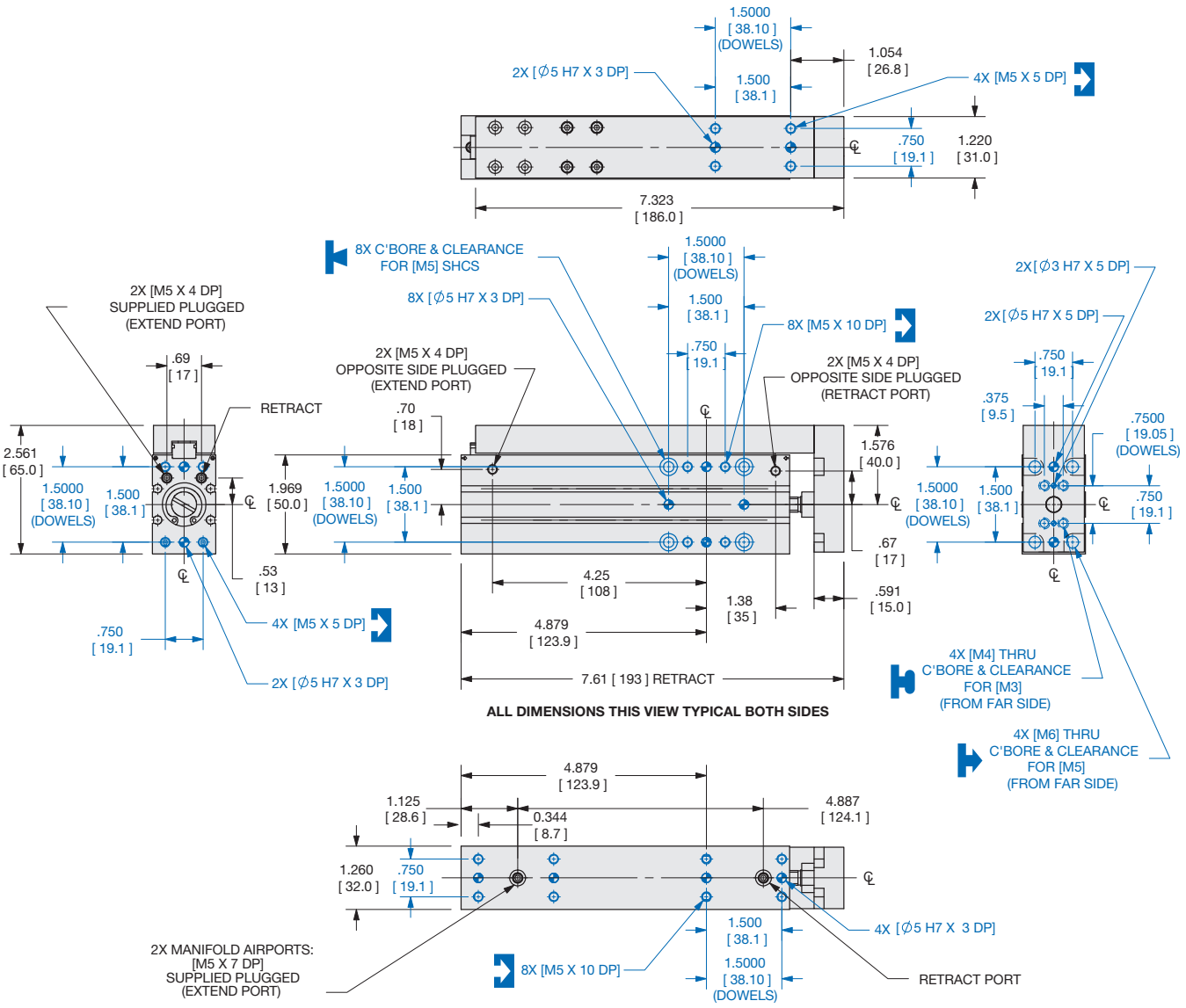


Manifold O-ring Seals

- Available in Seal Kit
- Kit is supplied with all seals, plugs & wrenches needed

MINI BALL RAIL SLIDE DLM-12M-75
DIRECTCONNECT MODULAR SERIES

Robohand



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL	BODY SIZE (See Below)		PRECISION STOPS	
DLM-12M	- 75	-	- D	- P
		STROKE (See Below)	DOUBLE BEARINGS	

BODY SIZE 75
STROKE (mm) 50, 55, 60, 65, 70, 75
DOUBLE BEARING D
PRECISION STOPS P

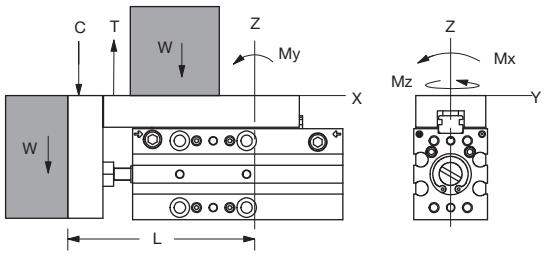
SAMPLE ORDER: DLM-12M-75-65-P
Ex: DLM-12M Mini Ball Rail Slide, -75 Body Size, 65mm Stroke, Precision Stops

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1-4
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1-4
PNP Magneto Resistive Sensor 90º Barrel (with Qk. Disc)*	OHSP-011	1-4
NPN Magneto Resistive Sensor 90º Barrel (with Qk. Disc.)*	OHSN-011	1-4
Quick Disconnect Cable (2 meters long)*	CABL-010	1-4
Quick Disconnect Cable (5 meters long)*	CABL-013	1-4

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit	SLKT-238	1
Manifold Seal Kit	SLKT-240	1
Adjustable Flow Control	VLVF-008	1 or 2

*Sensor and cable sold separately

Specifications	DLM-12M-75	
Thrust Force **F** @ 100 psi, 7 bar	51 lbs.	230 N
Max. Stroke	3.00 in.	150 mm
Stroke Reduction (return)	0.19 in.	5 mm
Weight	1.80 lbs.	0.82 Kg
Maximum Payload W	4.0 lbs.	1.81 Kg
Maximum Payload (-P Option)	2.0 lbs.	0.90 Kg
Cylinder Bore Ø	0.813 in.	22 mm
Temperature Range	-30°~180° F	-35°~80° C
Actuation per 25mm of travel	0.14 sec.	
Linear accuracy per 25mm of travel	±0.0001 in.	±0.005 mm
Repeatability (-P Option)	±0.003 in.	±0.08 mm
Pressure Range	20-100 psi	1.4-7 bar
Valve required to actuate	4-way, 2-position	

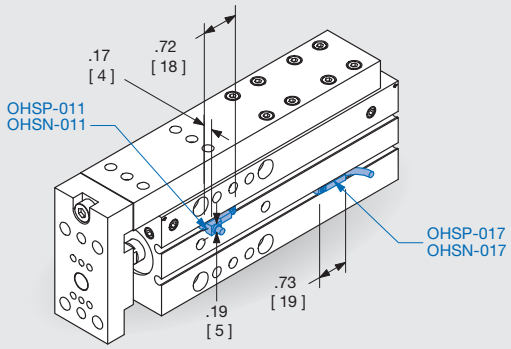


Flow Controls are recommended for nearly all applications

Loading Capacity

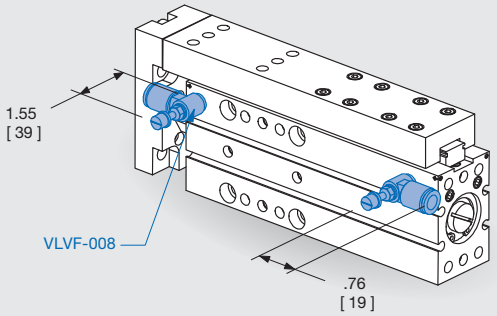
	Static	Dynamic
DLM-12M-75		
Maximum Tensile **T**	273 lbs. [1214 N]	181 lbs. [808 N]
Maximum Compressive **C**	273 lbs. [1214 N]	181 lbs. [808 N]
Maximum Moment $\mathbf{M_X}$	182 in.-lbs. [20.6 Nm]	121 in.-lbs. [13.7 Nm]
Maximum Moment $\mathbf{M_Y}$	104 in.-lbs. [11.8 Nm]	69 in.-lbs. [7.9 Nm]
Maximum Moment $\mathbf{M_Z}$	104 in.-lbs. [11.8 Nm]	69 in.-lbs. [7.9 Nm]
Distance to Bearing Centerline L	5.21 in. [132 mm]	
DLM-12M-75-D		
Maximum Tensile **T**	546 lbs. [2429 N]	363 lbs. [1617 N]
Maximum Compressive **C**	546 lbs. [2429 N]	363 lbs. [1617 N]
Maximum Moment $\mathbf{M_X}$	364 in.-lbs. [41.2 Nm]	242 in.-lbs. [27.4 Nm]
Maximum Moment $\mathbf{M_Y}$	208 in.-lbs. [23.6 Nm]	139 in.-lbs. [15.8 Nm]
Maximum Moment $\mathbf{M_Z}$	208 in.-lbs. [23.6 Nm]	139 in.-lbs. [15.8 Nm]
Distance to Bearing Centerline L	5.92 in. [150 mm]	

Accessory Mounting Technical Data



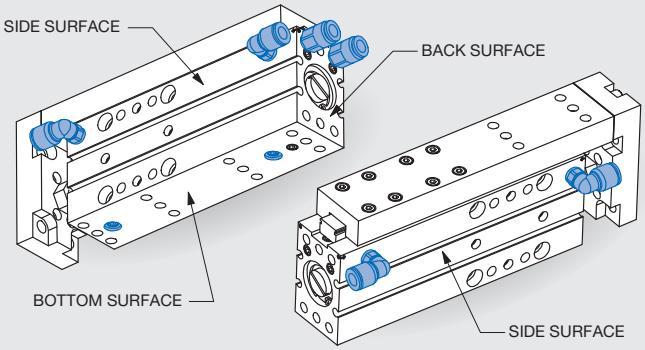
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



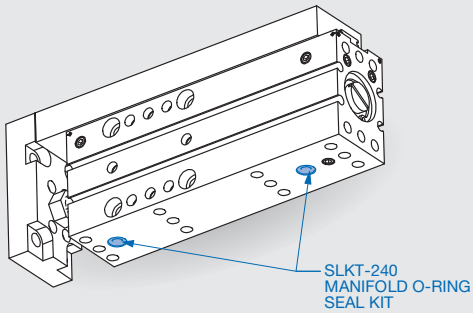
Plumbing Fittings

- Adjustable Flow Controls:
  - Thumb screw adjust with locking nut for adjusting actuation time
  - Available for 6mm O.D. tubing
- Consult Factory for additional available plumbing fittings



Multiple Air Port Locations

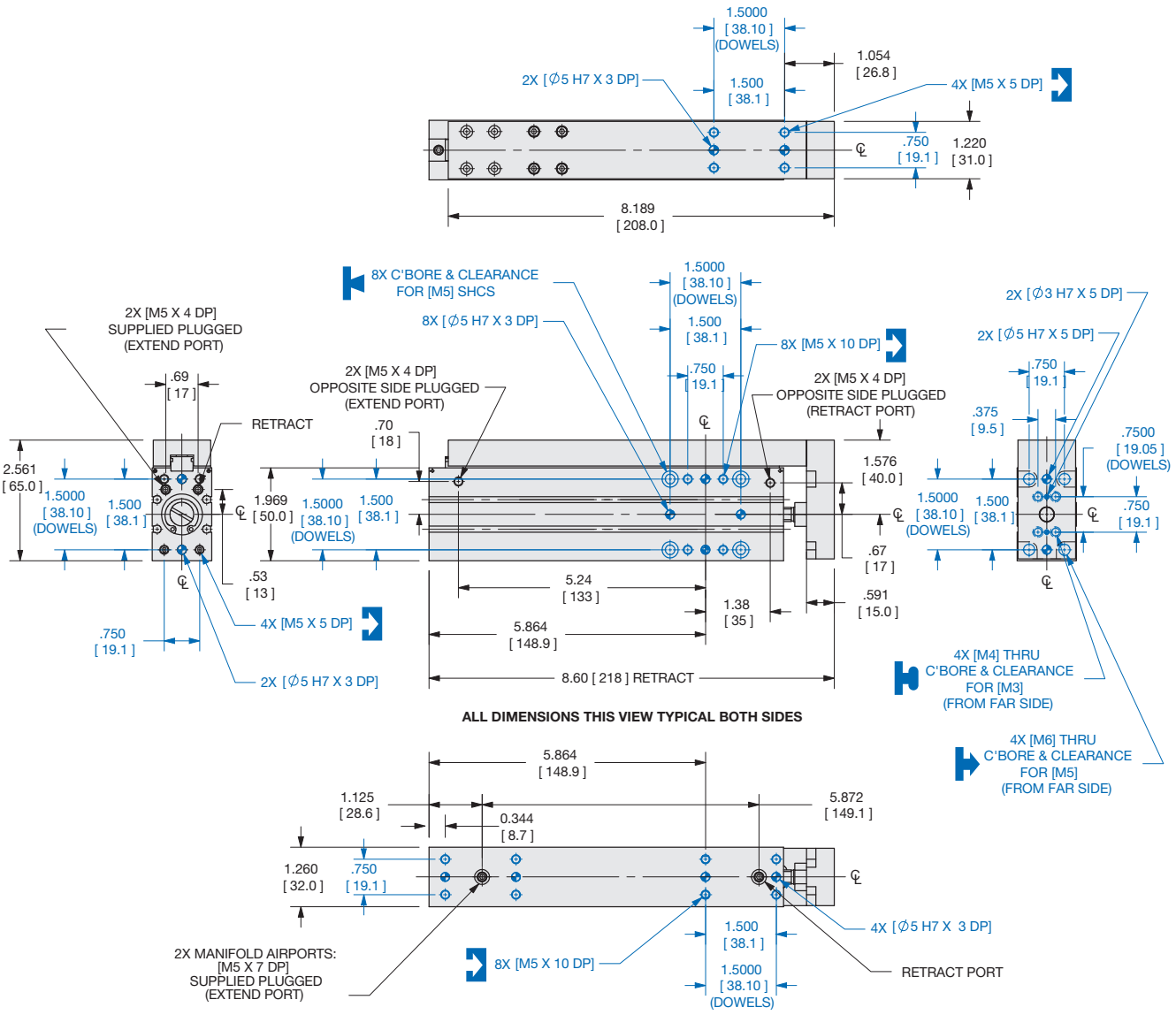
- 2 standard M5 air port locations (both sides)
- Bottom and Back airports (M3) are plugged as supplied



Manifold O-ring Seals

- Available in Seal Kit
- Kit is supplied with all seals, plugs & wrenches needed

MINI BALL RAIL SLIDE DLM-12M-100
DIRECTCONNECT MODULAR SERIES



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | BODY SIZE (See Below) | PRECISION STOPS

DLM-12M - 100 - [ ] - D - P

STROKE | DOUBLE BEARINGS

BODY SIZE 100
STROKE (mm) 75, 80, 85, 90, 95, 100
DOUBLE BEARING D
PRECISION STOPS P

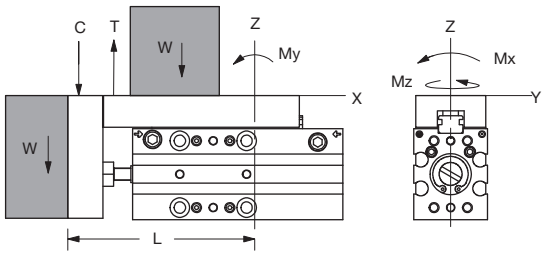
SAMPLE ORDER: DLM-12M-100-80-D
Ex: DLM-12M Mini Ball Rail Slide, -100 Body Size, 80mm Stroke, Double Ball Bearings

SENSOR ACCESSORIES	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1-4
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1-4
PNP Magneto Resistive Sensor 90º Barrel (with Qk. Disc)*	OHSP-011	1-4
NPN Magneto Resistive Sensor 90º Barrel (with Qk. Disc.)*	OHSN-011	1-4
Quick Disconnect Cable (2 meters long)*	CABL-010	1-4
Quick Disconnect Cable (5 meters long)*	CABL-013	1-4

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Seal Repair Kit	SLKT-238	1
Manifold Seal Kit	SLKT-240	1
Adjustable Flow Control	VLVF-008	1 or 2

*Sensor and cable sold separately

Specifications	DLM-12M-100	
Thrust Force **F** @ 100 psi, 7 bar	51 lbs.	230 N
Max. Stroke	4.00 in.	200 mm
Stroke Reduction (return)	0.19 in.	5 mm
Weight	2.25 lbs.	1.02 Kg
Maximum Payload W	4.0 lbs.	1.81 Kg
Maximum Payload (-P Option)	2.0 lbs.	0.90 Kg
Cylinder Bore Ø	0.813 in.	22 mm
Temperature Range:	-30°~180° F	-35°~80° C
Actuation per 25mm of travel	0.14 sec.	
Linear accuracy per 25mm of travel	±0.0001 in.	±0.005 mm
Repeatability (-P Option)	±0.003 in.	±0.08 mm
Pressure Range	20-100 psi	1.4-7 bar
Valve required to actuate	4-way, 2-position	

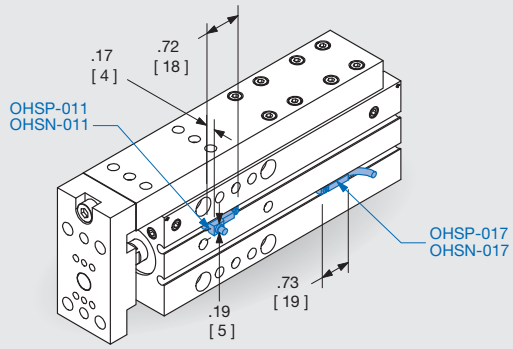


Flow Controls are recommended for nearly all applications

Loading Capacity

	Static	Dynamic
DLM-12M-100		
Maximum Tensile **T**	273 lbs. [1214 N]	181 lbs. [808 N]
Maximum Compressive **C**	273 lbs. [1214 N]	181 lbs. [808 N]
Maximum Moment $\mathbf{M_x}$	182 in.-lbs. [20.6 Nm]	121 in.-lbs. [13.7 Nm]
Maximum Moment $\mathbf{M_y}$	104 in.-lbs. [11.8 Nm]	69 in.-lbs. [7.9 Nm]
Maximum Moment $\mathbf{M_z}$	104 in.-lbs. [11.8 Nm]	69 in.-lbs. [7.9 Nm]
Distance to Bearing Centerline L	6.07 in. [154 mm]	
DLM-12M-100-D		
Maximum Tensile **T**	546 lbs. [2429 N]	363 lbs. [1617 N]
Maximum Compressive **C**	546 lbs. [2429 N]	363 lbs. [1617 N]
Maximum Moment $\mathbf{M_x}$	364 in.-lbs. [41.2 Nm]	242 in.-lbs. [27.4 Nm]
Maximum Moment $\mathbf{M_y}$	208 in.-lbs. [23.6 Nm]	139 in.-lbs. [15.8 Nm]
Maximum Moment $\mathbf{M_z}$	208 in.-lbs. [23.6 Nm]	139 in.-lbs. [15.8 Nm]
Distance to Bearing Centerline L	6.79 in. [172 mm]	

Accessory Mounting Technical Data



Sensors

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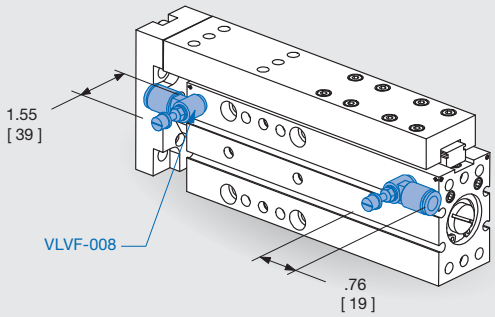

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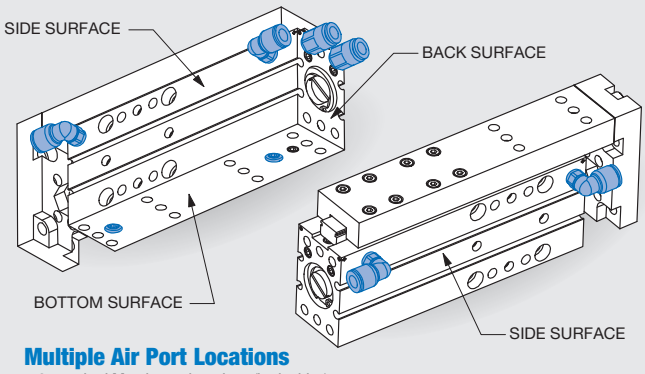

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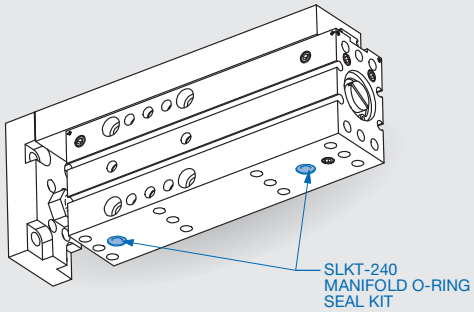
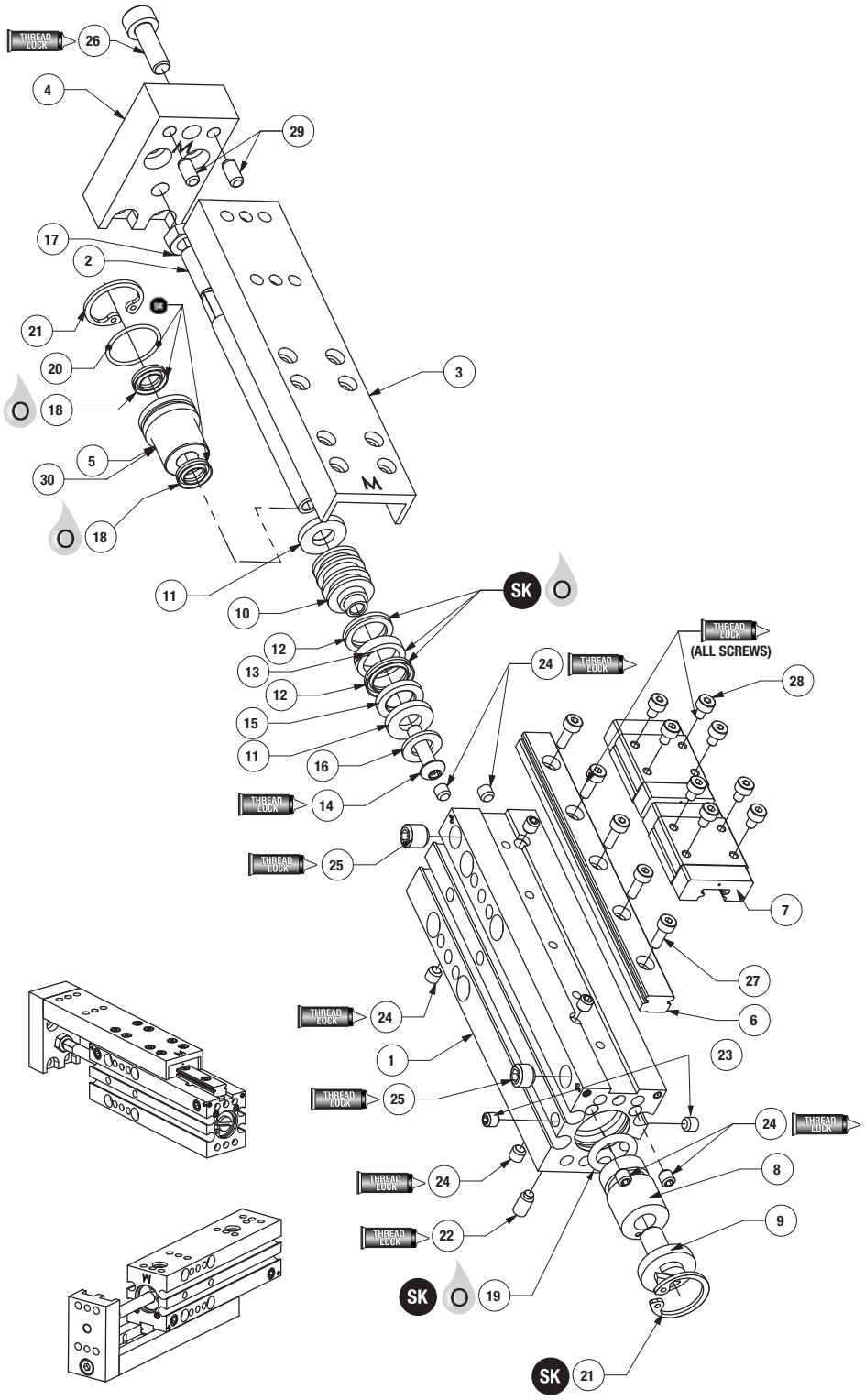


Manifold O-ring Seals

- Available in Seal Kit
- Kit is supplied with all seals, plugs & wrenches needed

DLM SERIES EXPLODED VIEW



Item	Qty	Name
01	1	Body
02	1	Piston Shaft
03	1	Tool Plate Top
04	1	Tool Plate Face
05	1	Shaft End Cap
06	1	Guide Rail Bearing
07	1 or 2	Bearing Block
08	1	Stop
09	1	Adjustment Stud
10	1	Piston
11	2	Shock Pad
12	2	Piston U-Cup
13	1	Teflon Ring
14	1	Piston Screw
15	1	Magnet
16	1	Piston Washer
17	1	Jam Nut
18	1	End Cap U-Cup
19	2	Stop O-Ring
20	1	Shaft End Cap O-Ring
21	2	Cap Retaining Ring
22	1	Stop Set Screw
23	2	Adjustment Stud Set Screw
24	8	Plug Set Screw
25	2	Port Plug Set Screw
26	1	Tool Plate Screw
27	3-9	Rail Screw
28	4 or 8	Bearing Screw
29	2	Face Plate Dowel
30	1	Piston Spacer

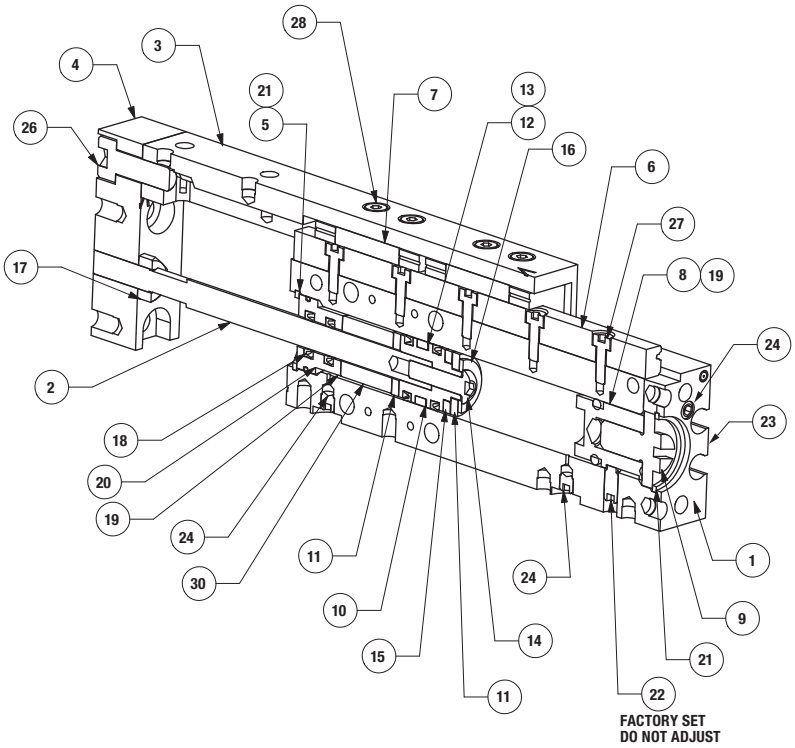
NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedure

1) Install set screw plugs in appropriate ports in body using thread sealer
2) Attach Rail to Body
3) Attach Tool Plate Face to Tool Plate Top
4) Glue Magnet to Piston
5) Lube and install seals in Piston, Stop and End Cap
6) Install Stop Pad (retract) and Washer in Piston
7) Attach Nut to Shaft
8) Attach Piston to Shaft with End Cap, Spacer and Stop Pad (extend)
9) Install Stop from front of Body
10) Install Dog Point Set Screw
11) Install Adjustment Studs
12) Install Piston Assembly
13) Install Bearing Block
14) Install Tool Plate Assembly

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon™ Based Grease | GLUE Super Bonder | Third Angle Projection

DLM SERIES ASSEMBLED VIEW



Item	Qty	Name
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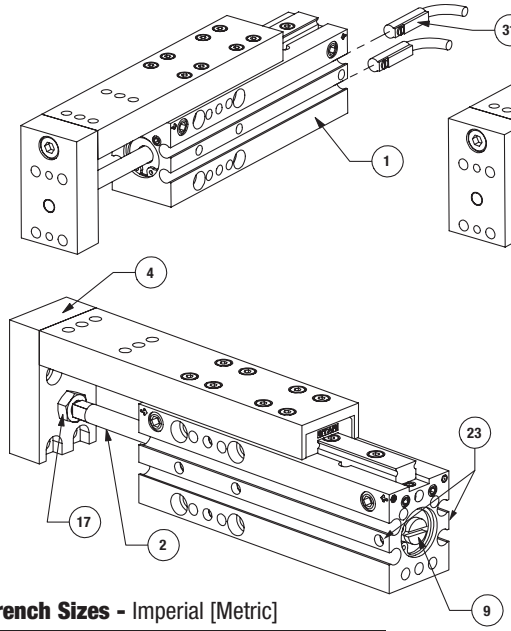
12	2	Piston U-Cup
13	1	Teflon Ring
14	1	Piston Screw
15	1	Magnet
16	1	Piston Washer
17	1	Jam Nut
18	1	End Cap U-Cup
19	2	Stop O-Ring
20	1	Shaft End Cap O-Ring
21	2	Cap Retaining Ring
22	1	Stop Set Screw
23	2	Adjustment Stud Set Screw
24	8	Plug Set Screw
25	2	Port Plug Set Screw
26	1	Tool Plate Screw
27	3-9	Rail Screw
28	4 or 8	Bearing Screw
29	2	Face Plate Dowel
30	1	Piston Spacer

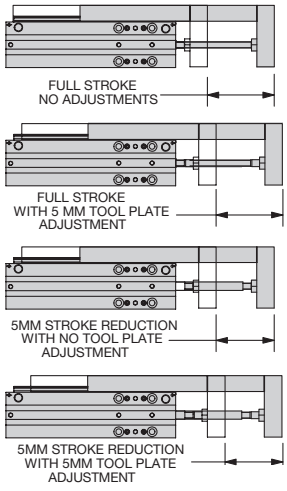
NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Accessory Installation & Adjustment Instructions



Wrench Sizes - Imperial [Metric]

Model	Nut	Flats on Shaft
-07	9/32 [7]	1/8 [3]
-09	13/32 [10]	7/32 [6]
-12	9/16 [13]	5/16 [8]



Item	Qty	Name
1	1	Body
31	1-4	Sensor

Assembly Procedure

1) Install sensor in profile slots as sho wn

2) Once adjusted for end stroke, lock in position with integrated set screws

Stroke and Position Adjustment Procedure

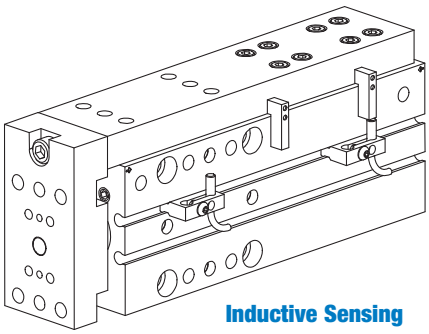
1) Tool Plate position can be adjusted up to 5mm by loosening Jam Nut (17) and unthreading Shaft (2) from Tool Plate Face (4). **Caution. Do not exceed 5mm. Shaft may completely unthread from Tool Plate Face. There is no limit and it is the responsibility of the installer/adjuster not to exceed 5mm from factory settings.** Retighten Jam Nut upon attaining desired location.

2) Retract stroke can be adjusted up to 5mm by loosening Adjustment Stud Set Screws (23) and then turning Adjustment Stud (9). Maximum and minimum limits are integral to this adjustment and cannot be exceeded. Retighten Set Screw upon attaining desired location.

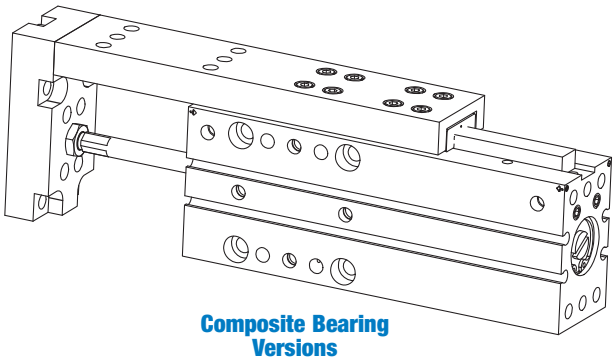
SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | Lightweight Machine Oil | G Teflon™ Based Grease | GLUE Super Bonder | Third Angle Projection

Inductive Sensing, Composite Bearings, Opposing Tool Plates, Dual Support, Spring Retract/Extend and more…

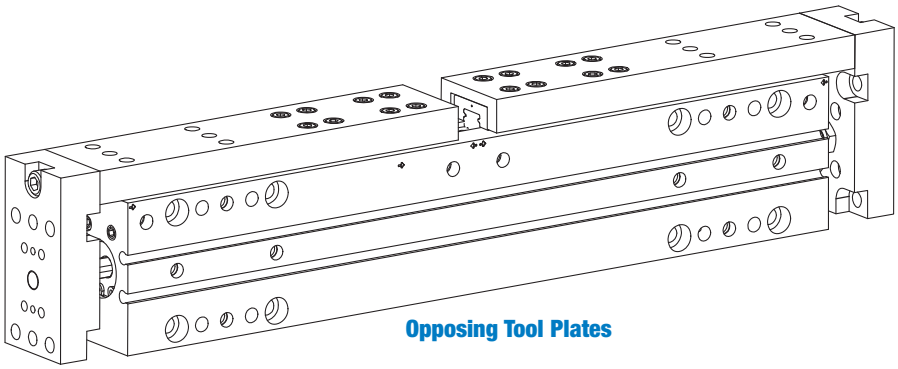
Drawings are for concept only. Contact Robohand Tech Support with project requirements.



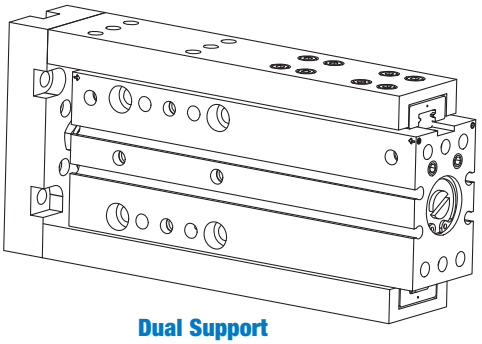
Inductive Sensing



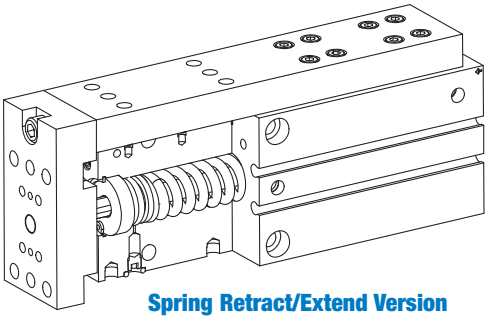
Composite Bearing Versions



Opposing Tool Plates

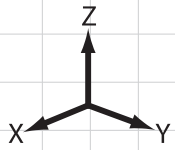


Dual Support



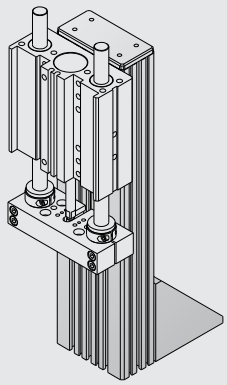
Spring Retract/Extend Version

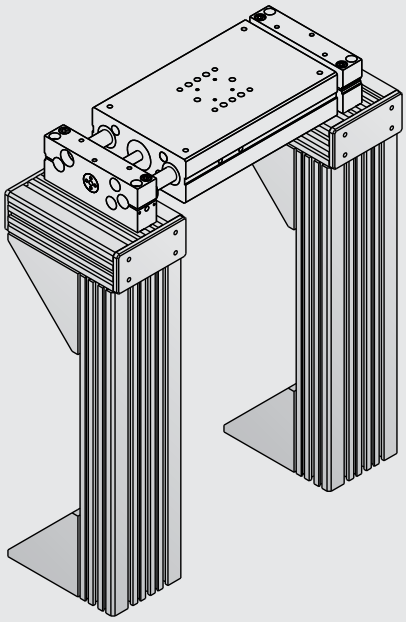
Please describe your application. Include a sketch or attach additional sheets if necessary.

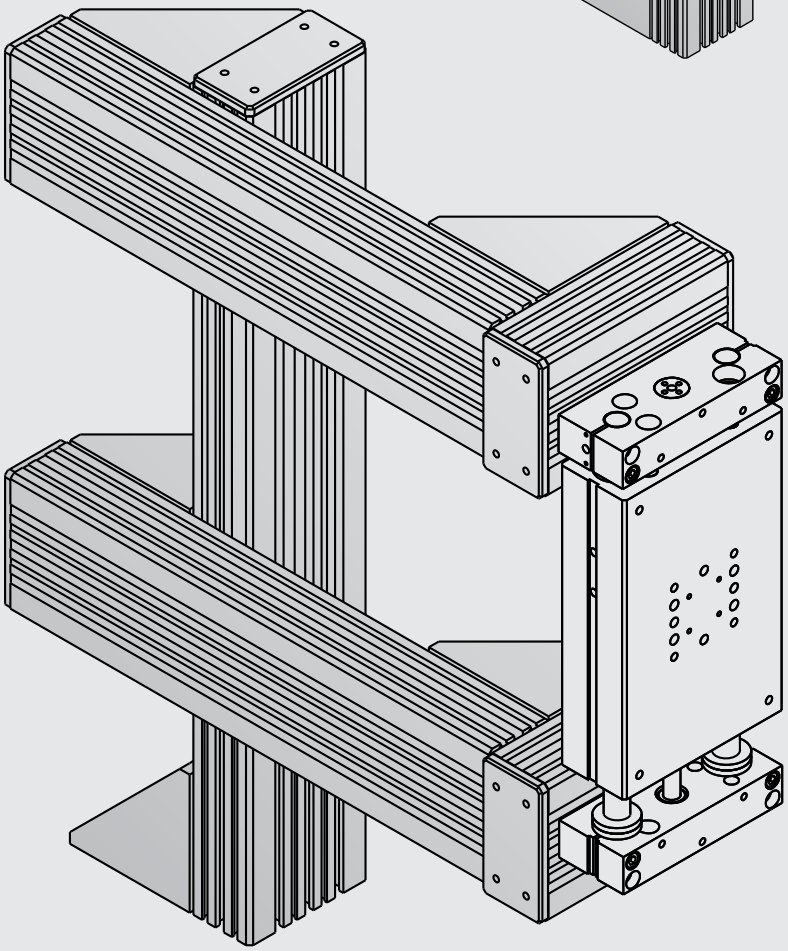


DIRECT CONNECT™

Mounting Stanchions







DIRECTCONNECT™

Pre-Engineered and Built Mounting Stanchions

- DIRECTCONNECT Mounting Stanchions are designed to provide a simple and sturdy solution for mounting DIRECTCONNECT Base Slides and Thrusters.
- Pre-engineered designs save valuable design and assembly time.
- DIRECTCONNECT mounting stanchions are constructed using extruded aluminum beams with T-slots that correspond to DIRECTCONNECT Base Slide and Thruster mounting patterns.
- Choose from the widest selection in the industry of Pre-Engineered designs. Select from 10 different design styles from the catalog (see pages 5.4-5.5). Specify beam size and basic dimensions required for your application.
- Stanchions are factory pre-assembled, marked at the disassembly point then partially disassembled & shipped.
- Re-assembly requires aligning the disassembly marks of the sections and screwing them together with the supplied Allen wrench. The Base Slide or Thruster is then attached, aligned and bolted down.
- Nut Plate and Socket Head Cap Screw Kits for mounting Slides to the Extrusions are sold separately as an Accessory Kit which includes all Hardware and Tools. Hardware to mount Base Flange to the ground or Machine Base are customer supplied.
- Customize the pre-engineered configurations with Add-on Kits and Accessories.

Selection and Ordering

Simplified ordering. Select design style, size, and basic dimensions.

1. Choose the size of the Mounting Module based on the size of the DIRECTCONNECT Base Slide or Thruster that needs to be mounted.
2. Determine the pre-designed mounting style that best suits the application.
3. Make sure that loading and length restrictions are followed.

Design and Build your own Custom Mounting Stanchions

Beams are connected together at right angles using Corner Gussets. Gussets are sold separately or as a kit with Nut Plate, Hardware and Tools (see pages 5.36-5.40).

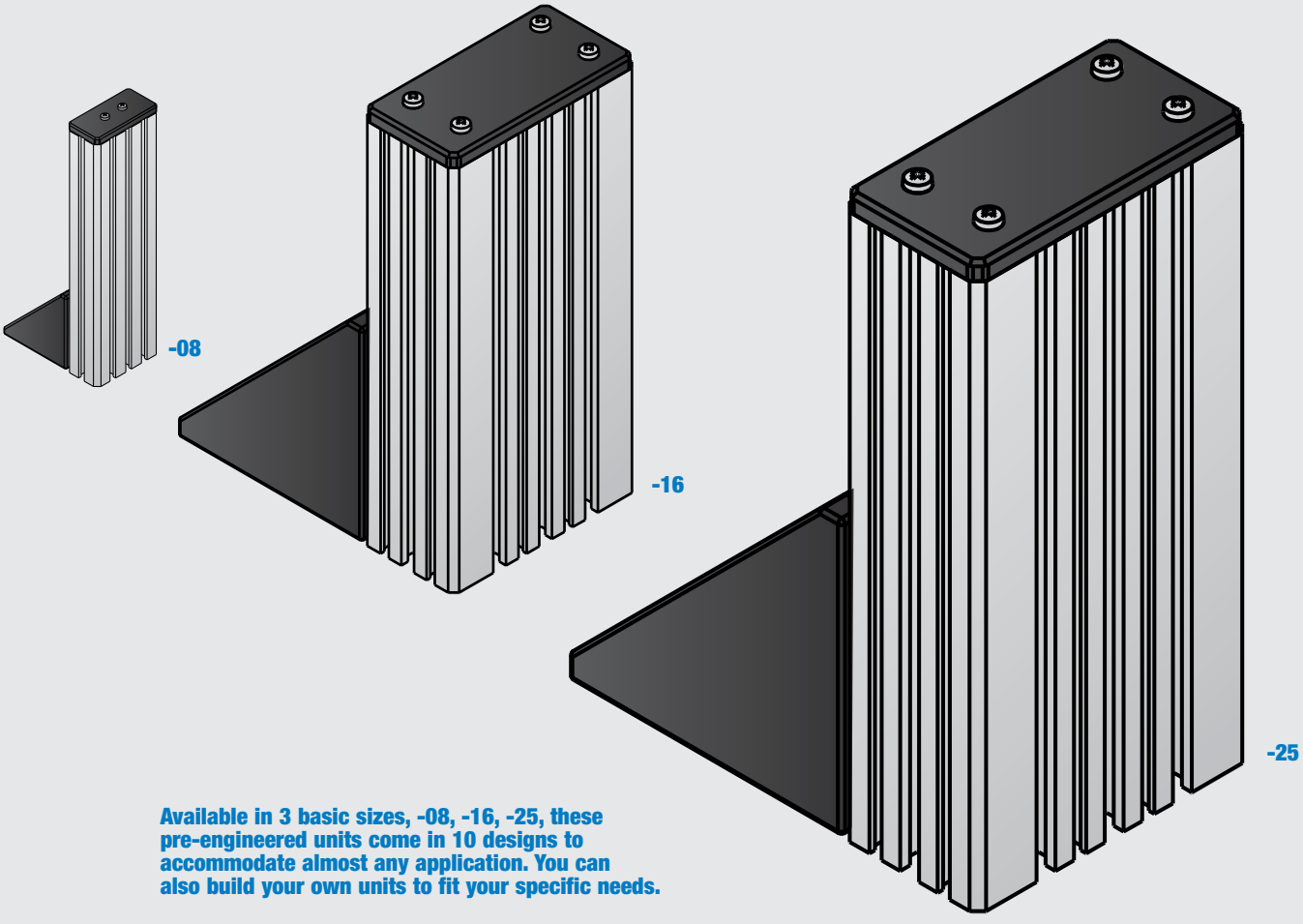
Size 25 beams can mount DIRECTCONNECT sizes 10-25 Thruster and Base Slides styles on its wide sides and size 10-16 on its narrow sides.

Size 16 beam can mount size 06-16 components on its wide sides and sizes 06 & 08 on its narrow side.

Size 08 beams mount size 06 & 08 on its wide sides.

Slotted beam extrusions and nut design allows for easy position adjustment of both mounting module components and slides.

Custom DIRECTCONNECT Mounting Stanchions can easily be designed using the FREE CAD files. See pages 5.36-5.40 for more information on individual components.

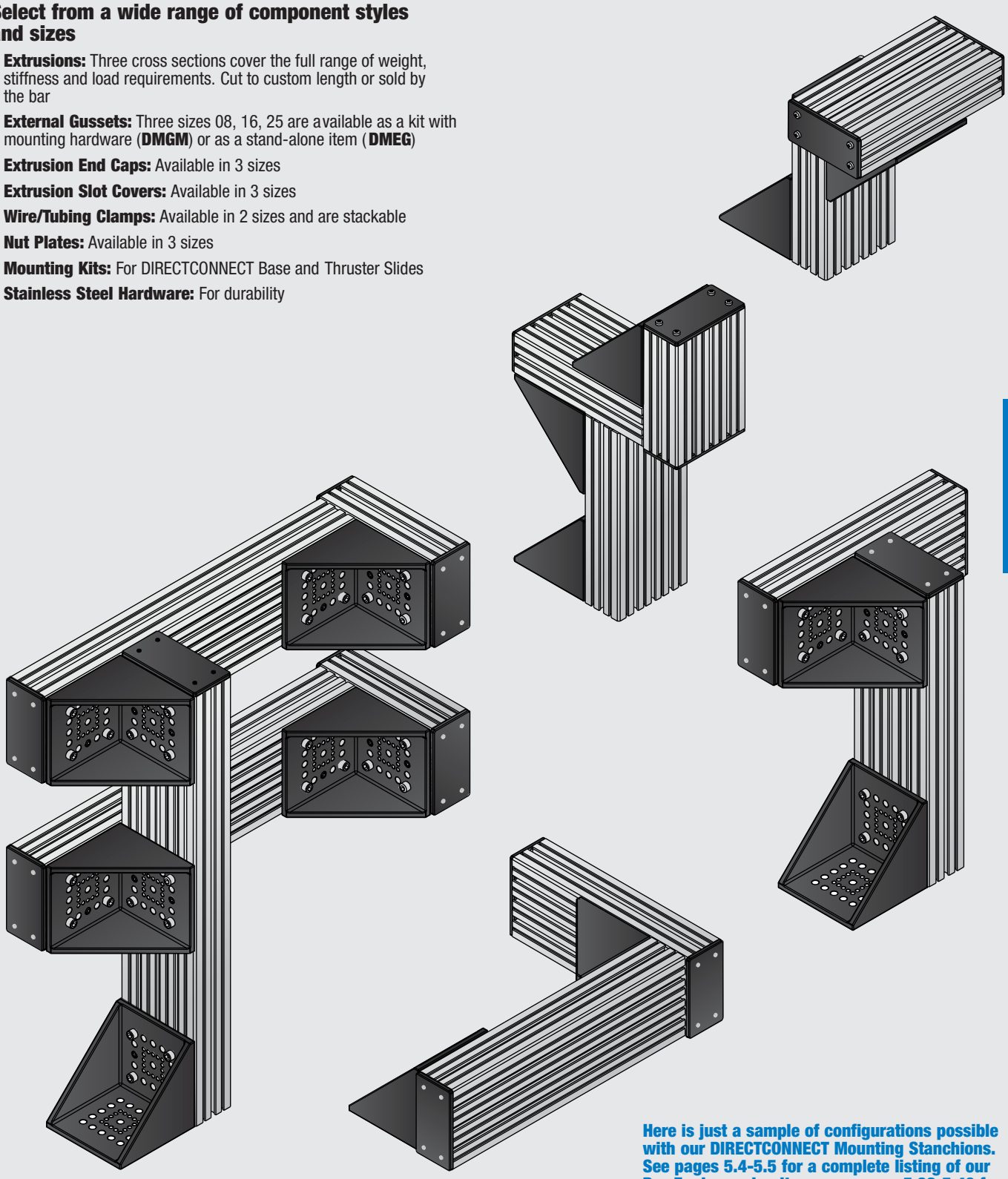


Available in 3 basic sizes, -08, -16, -25, these pre-engineered units come in 10 designs to accommodate almost any application. You can also build your own units to fit your specific needs.

Mounting Stanchions

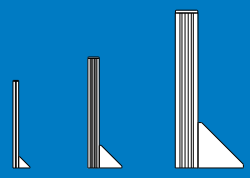
Select from a wide range of component styles and sizes

- **Extrusions:** Three cross sections cover the full range of weight, stiffness and load requirements. Cut to custom length or sold by the bar
- **External Gussets:** Three sizes 08, 16, 25 are available as a kit with mounting hardware (**DMGM**) or as a stand-alone item (**DMEG**)
- **Extrusion End Caps:** Available in 3 sizes
- **Extrusion Slot Covers:** Available in 3 sizes
- **Wire/Tubing Clamps:** Available in 2 sizes and are stackable
- **Nut Plates:** Available in 3 sizes
- **Mounting Kits:** For DIRECTCONNECT Base and Thruster Slides
- **Stainless Steel Hardware:** For durability

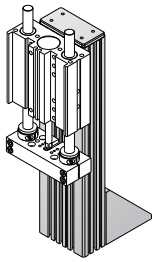
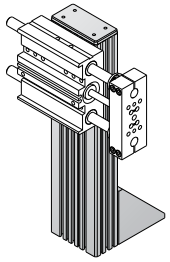
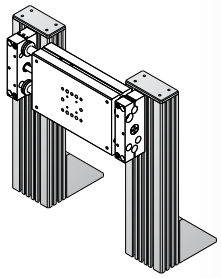


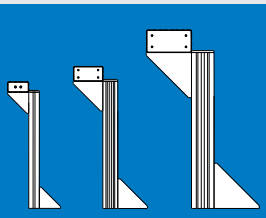
Here is just a sample of configurations possible with our DIRECTCONNECT Mounting Stanchions. See pages 5.4-5.5 for a complete listing of our Pre-Engineered units or see pages 5.36-5.40 for detailed information on individual components to completely customize your own designs.

Pre-Engineered Mounting

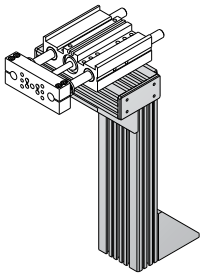
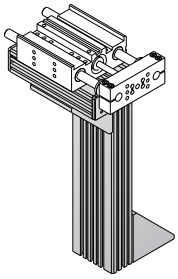
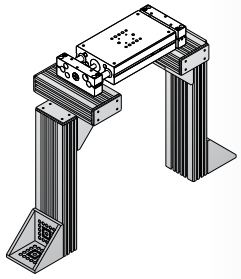


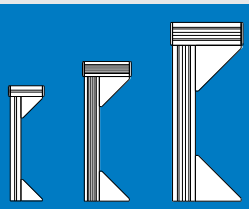
Style -DMM-01
Size -08,16,25

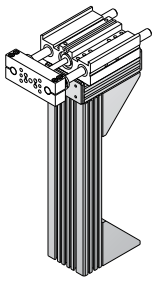
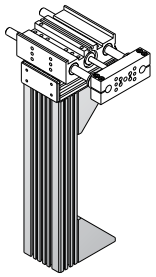
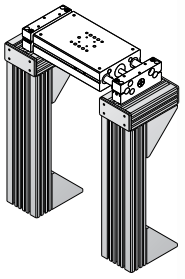


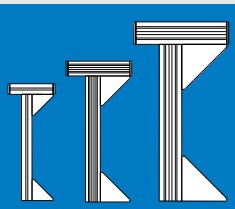
Style-DMM-02
Size-08,16,25



Style-DMM-03
Size-08,16,25



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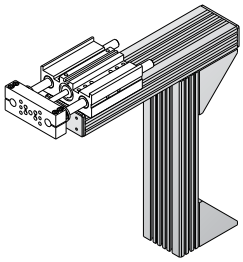
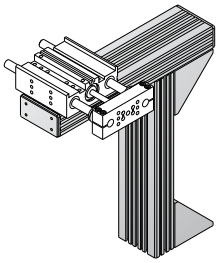
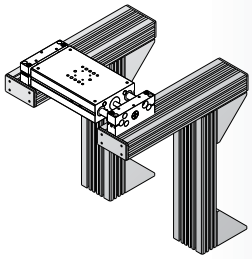
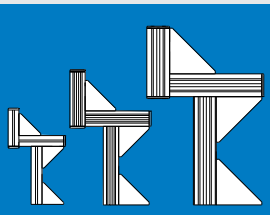
Size-08,16,25



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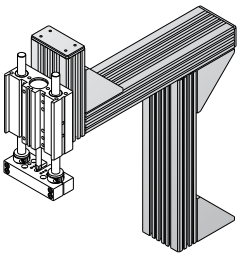
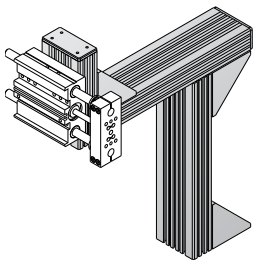
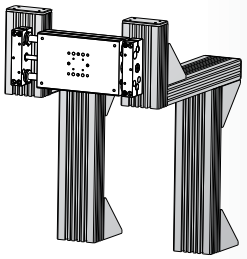

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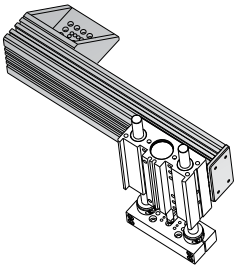
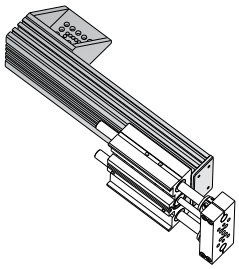
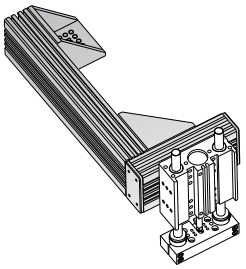
Stanchions Product Selector

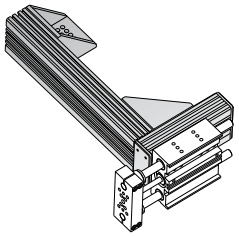
Style -DMM-06
Size -08,16,25

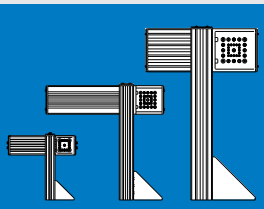




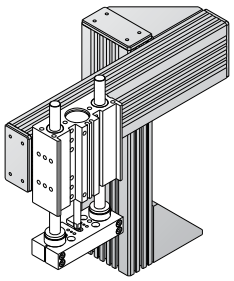
Style-DMM-07
Size-08,16,25

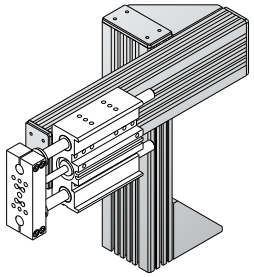


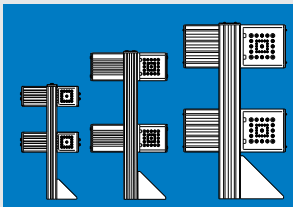




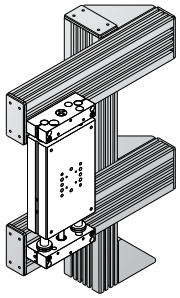
Style-DMM-08
Size-08,16,25

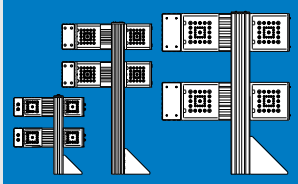




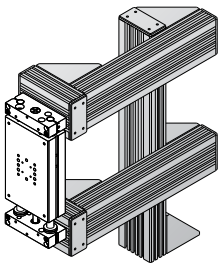


Style-DMM-09
Size-08,16,25





Style-DMM-10
Size-08,16,25

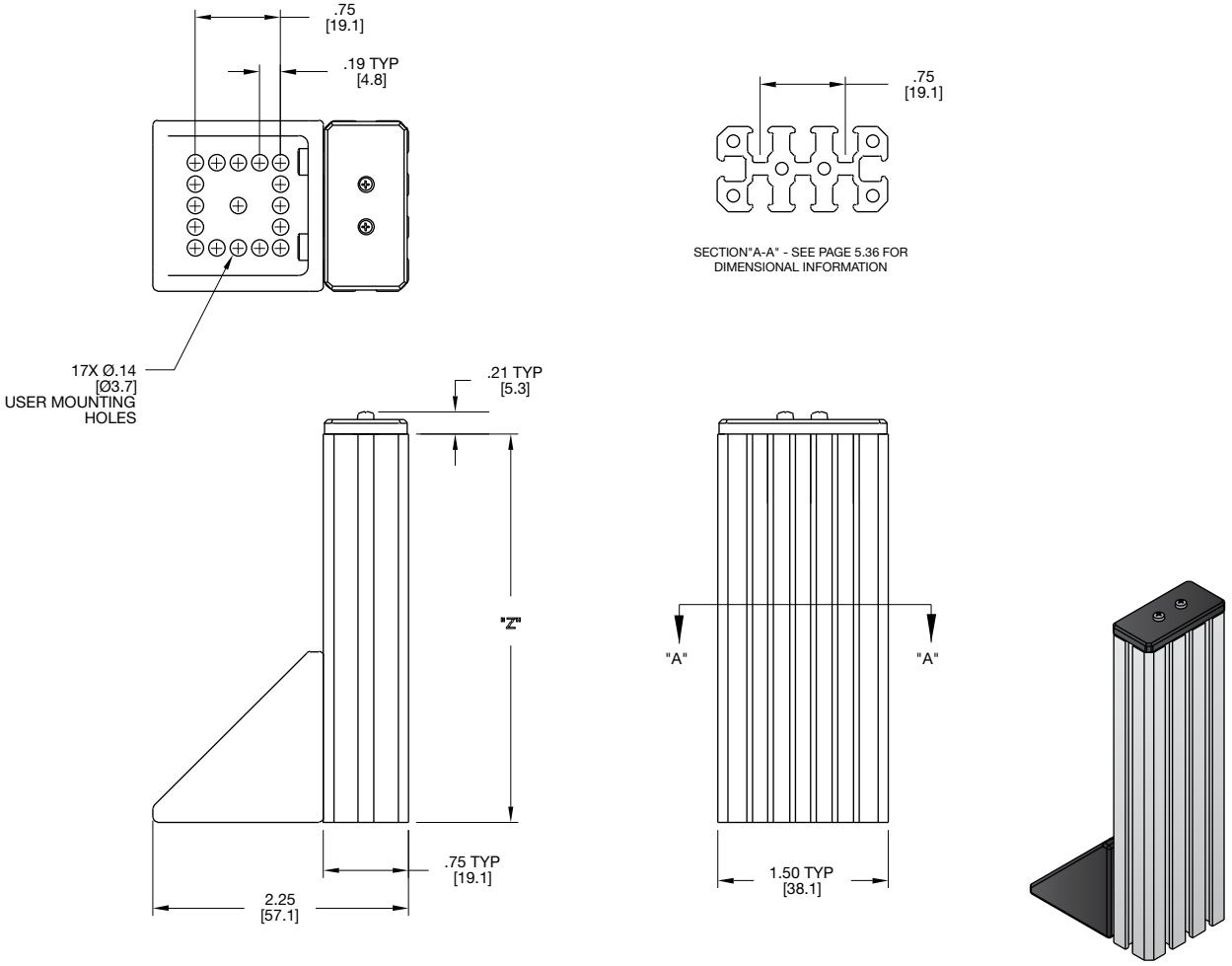


Custom Design your own DIRECTCONNECT Mounting Stanchions.

Please see pages 5.36-5.40 for detailed component specifications or call us at 1.888.DESTACO for more info!

DIRECTCONNECT™

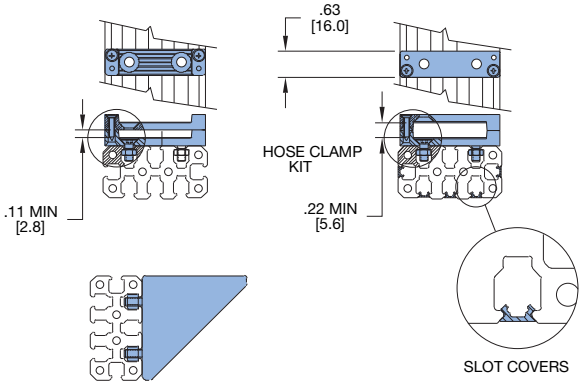
MOUNTING MODULE DMM-08-01

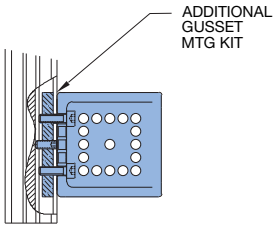


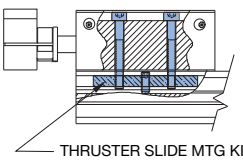
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

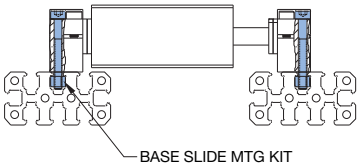
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)









BASIC MODEL

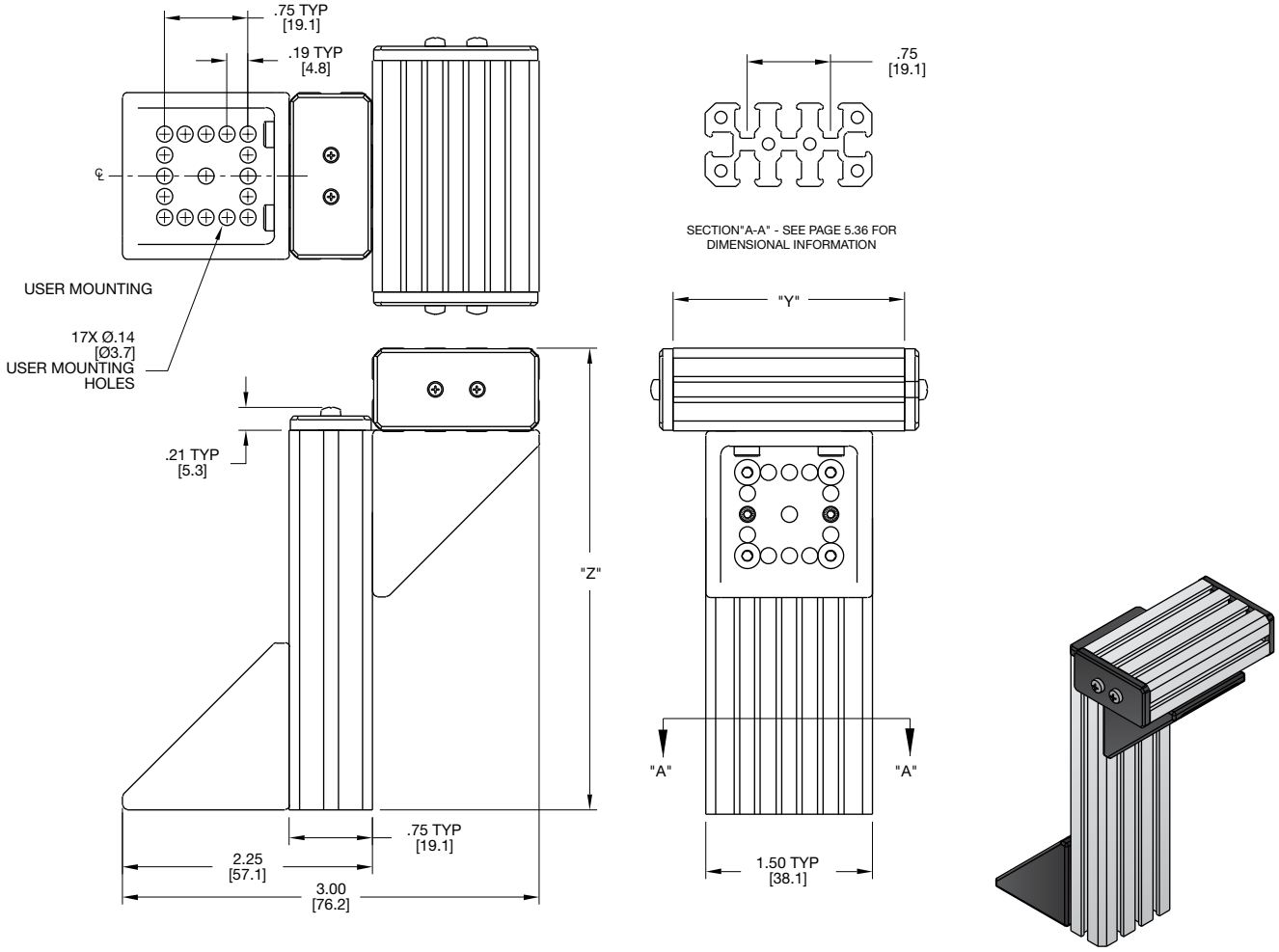
DMM-08-01 – X.XX

See drawing above. Increments of 0.01"

DIM "Z" Min: 2.50 in. Max: 12.00 in.

ACCESSORIES	SIZE -06	SIZE -08	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-06	DMBM-08	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-06	DMTM-06	1
Additional Gusset Mounting Kit (Small)	DMGM-08	DMGM-08	Multiple
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	1 ea./ft.
Hose Clamp Kit (Small)	DMHC-001	DMHC-001	Multiple

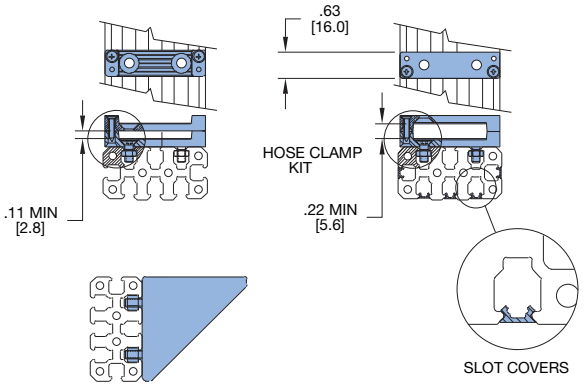
*One 8ft. Length of Slot Cover needed for each foot of extrusion length.



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)



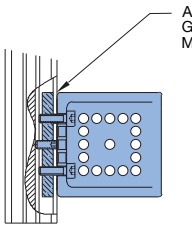
BASIC MODEL **DMM-08-02** - **X.XX** - **X.XX**

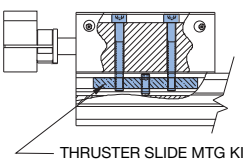
See drawing above. Increments of 0.01" — DIM "Y" — Min: 2.50 in. Max: 7.00 in.

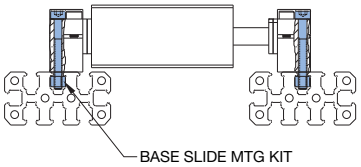
See drawing above. Increments of 0.01" — DIM "Z" — Min: 3.75 in. Max: 12.00 in.

ACCESSORIES	SIZE -06	SIZE -08	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-06	DMBM-08	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-06	DMTM-06	1
Additional Gusset Mounting Kit (Small)	DMGM-08	DMGM-08	Multiple
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	1 ea./ft.
Hose Clamp Kit (Small)	DMHC-001	DMHC-001	Multiple

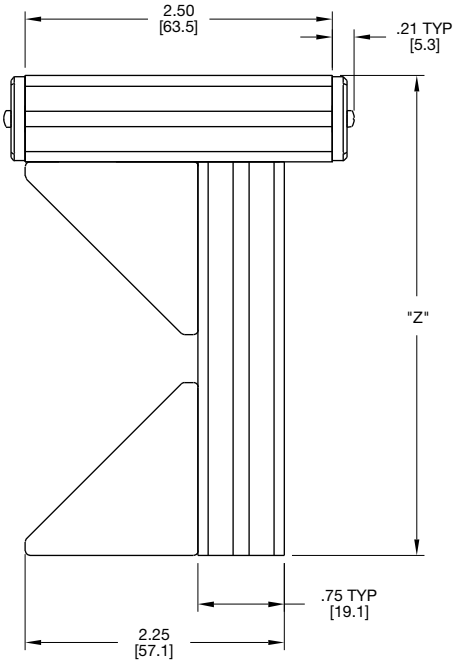
*One 8ft. Length of Slot Cover needed for each foot of extrusion length.

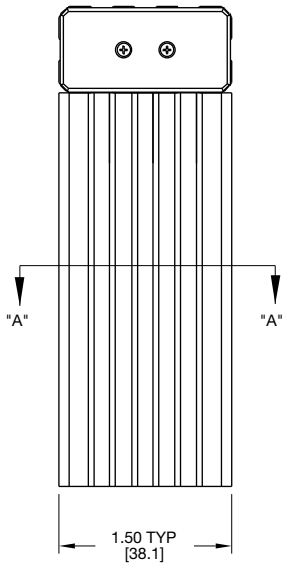


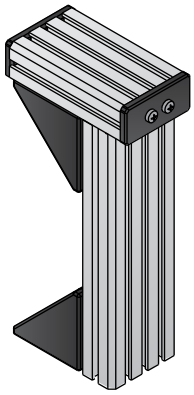


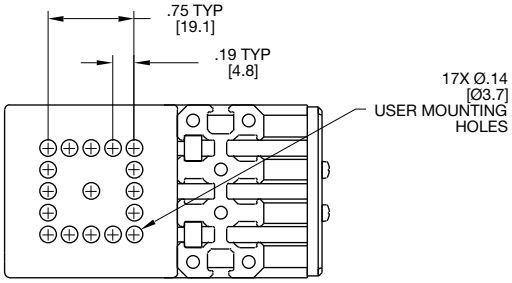


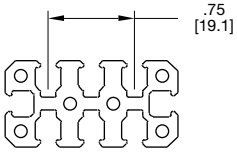
MOUNTING MODULE DMM-08-03









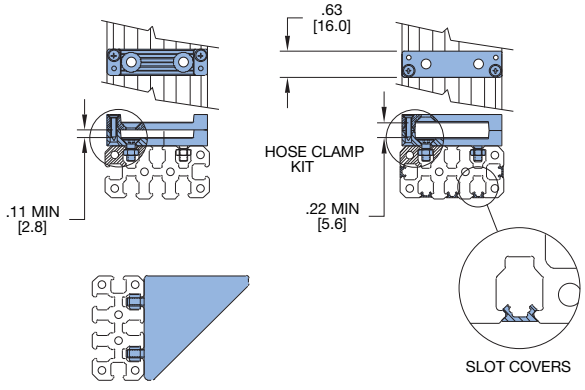


SECTION"A-A" - SEE PAGE 5.36 FOR DIMENSIONAL INFORMATION

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)



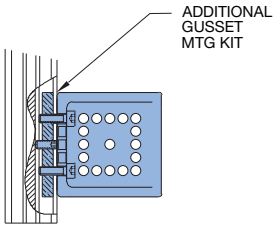
BASIC MODEL

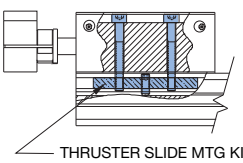
DMM-08-03 - X.XX

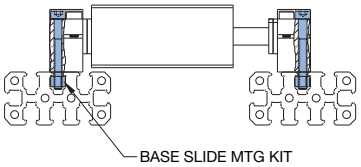
See drawing above. Increments of 0.01" — DIM "Z" — Min: 3.75 in. Max: 12.00 in.

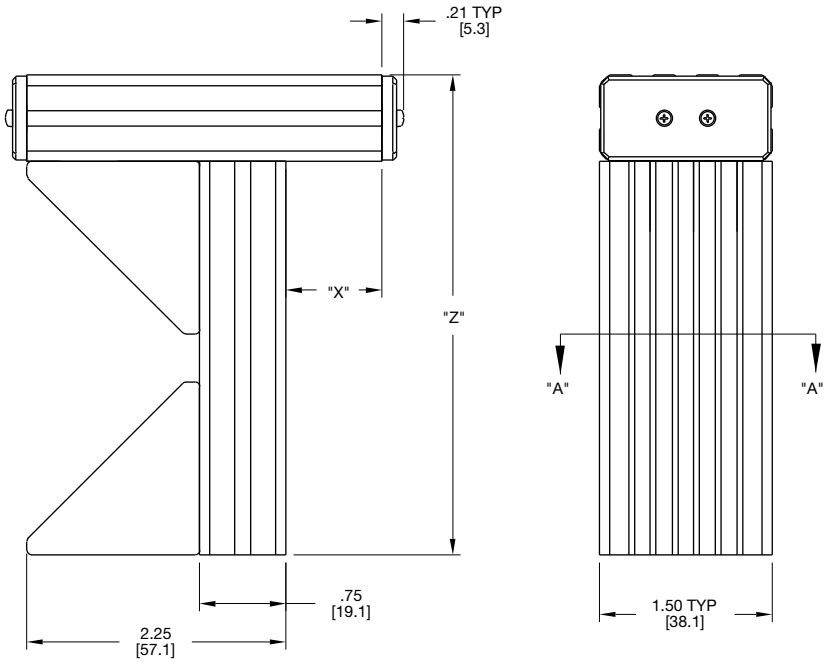
ACCESSORIES	SIZE -06	SIZE -08	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-06	DMBM-08	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-06	DMTM-06	1
Additional Gusset Mounting Kit (Small)	DMGM-08	DMGM-08	Multiple
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	1 ea./ft.
Hose Clamp Kit (Small)	DMHC-001	DMHC-001	Multiple

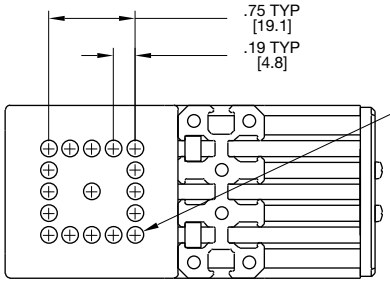
*One 8ft. Length of Slot Cover needed for each foot of extrusion length.

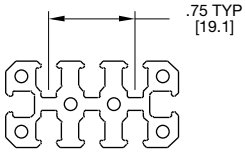




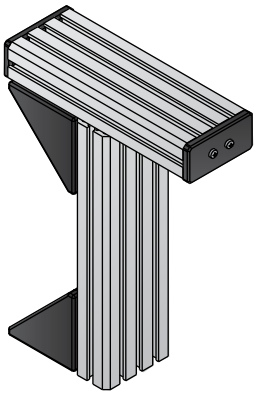








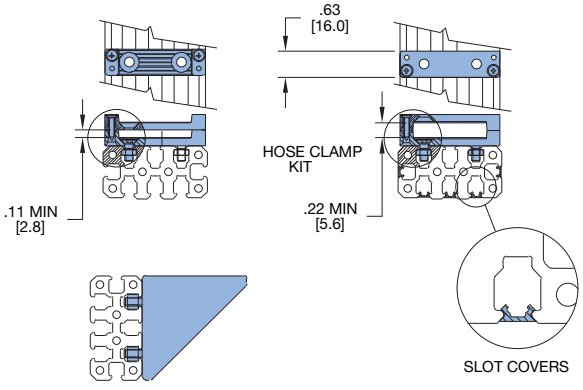
SECTION"A-A" - SEE PAGE 5.36 FOR DIMENSIONAL INFORMATION



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)



BASIC MODEL

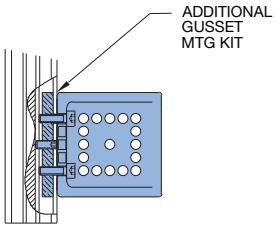
DMM-08-04 - X.XX - X.XX

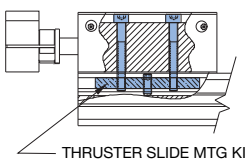
See drawing above. Increments of 0.01" — DIM "X" — Min: 0.00 in. Max: 6.00 in.

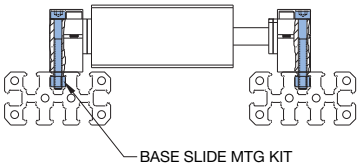
See drawing above. Increments of 0.01" — DIM "Z" — Min: 3.75 in. Max: 6.00 in.

ACCESSORIES	SIZE -06	SIZE -08	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-06	DMBM-08	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-06	DMTM-06	1
Additional Gusset Mounting Kit (Small)	DMGM-08	DMGM-08	Multiple
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	1 ea./ft.
Hose Clamp Kit (Small)	DMHC-001	DMHC-001	Multiple

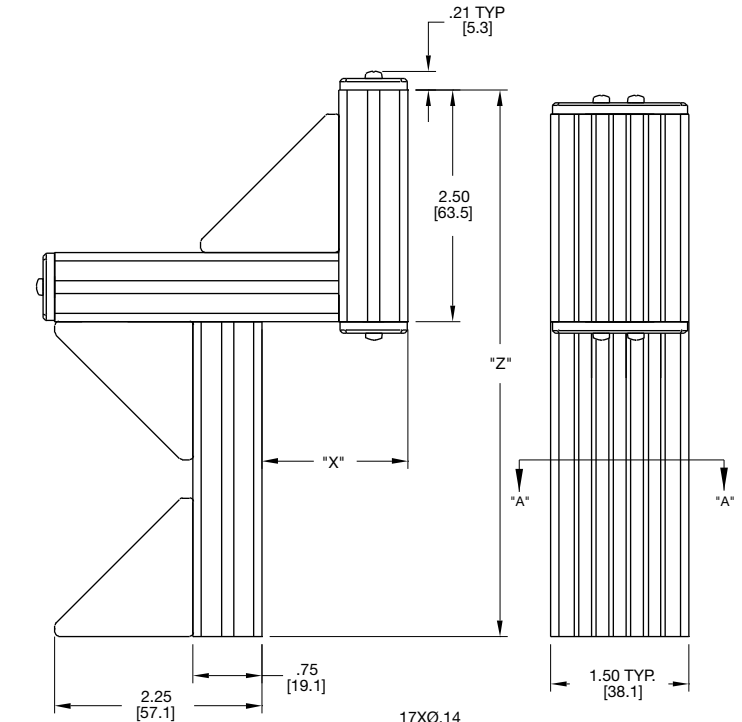
*One 8ft. Length of Slot Cover needed for each foot of extrusion length.

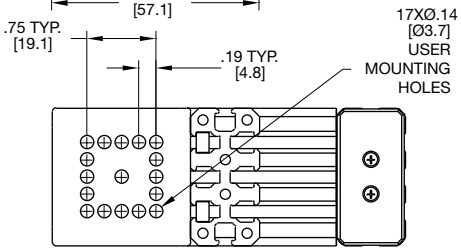


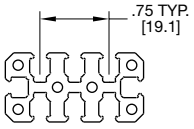




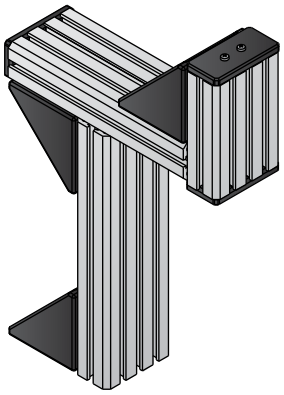
MOUNTING MODULE DMM-08-05







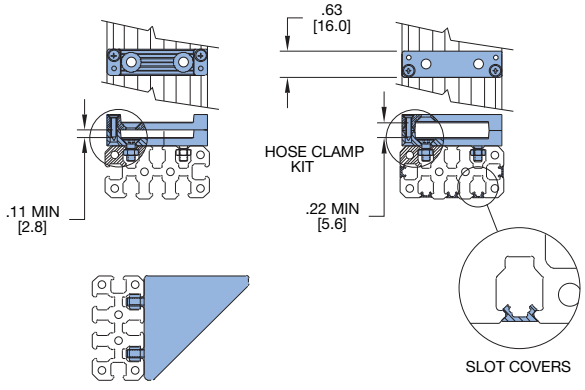
SECTION"A-A" - SEE PAGE 5.36 FOR DIMENSIONAL INFORMATION



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)



BASIC MODEL

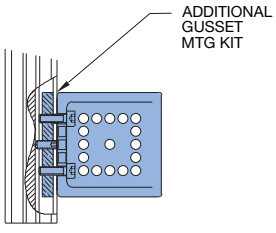
See drawing above. Increments of 0.01" DIM "X" Min: 0.75 in. Max: 6.00 in.

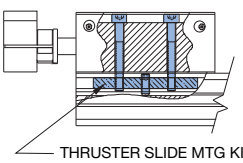
DMM-08-05 - X.XX - X.XX

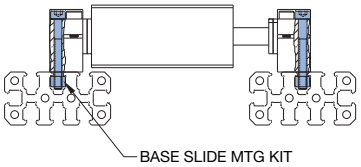
See drawing above. Increments of 0.01" DIM "Z" Min: 5.50 in. Max: 6.00 in.

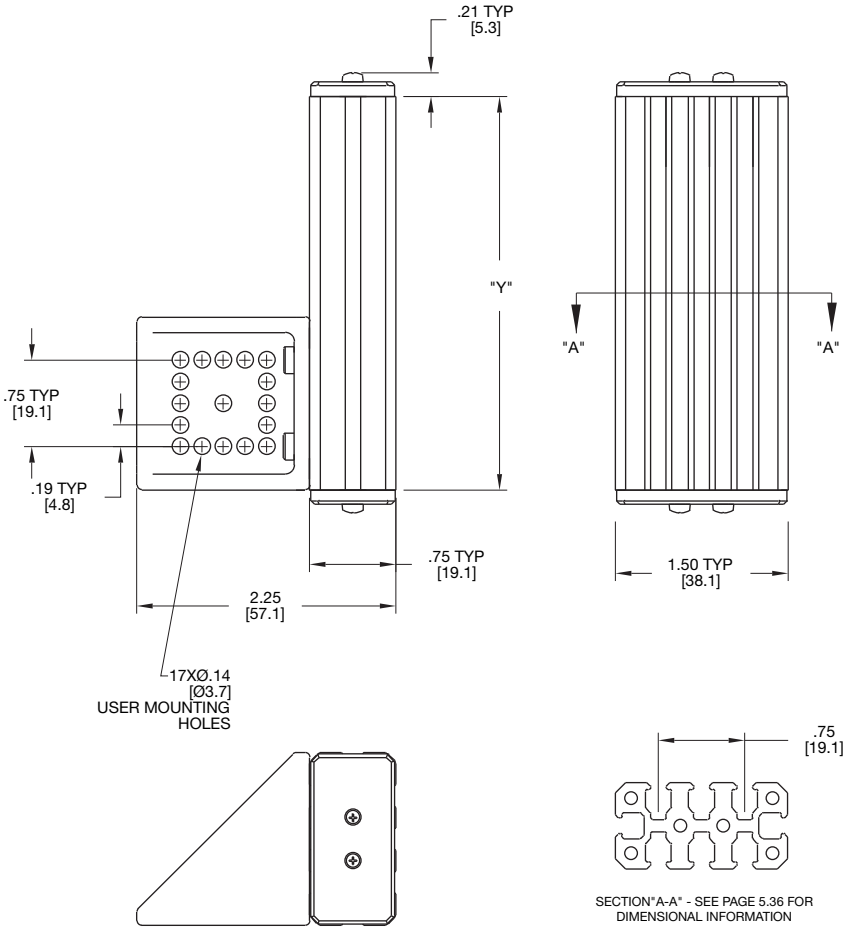
ACCESSORIES	SIZE -06	SIZE -08	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-06	DMBM-08	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-06	DMTM-06	1
Additional Gusset Mounting Kit (Small)	DMGM-08	DMGM-08	Multiple
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	1 ea./ft.
Hose Clamp Kit (Small)	DMHC-001	DMHC-001	Multiple

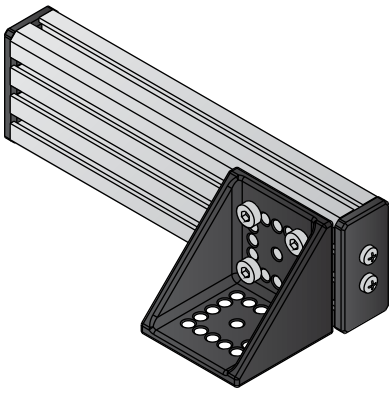
*One 8ft. Length of Slot Cover needed for each foot of extrusion length.



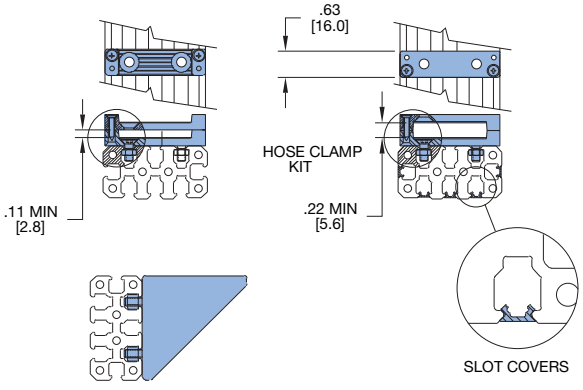








How to Order: (Order Accessories separately from Basic Model)



BASIC MODEL

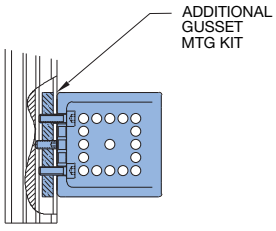
DMM-08-06 - X.XX

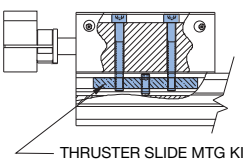
See drawing above. Increments of 0.01"

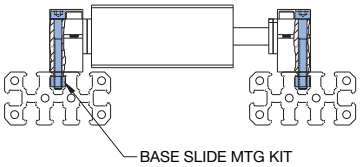
DIM "Y" Min: 2.50 in. Max: 12.00 in.

ACCESSORIES	SIZE -06	SIZE -08	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-06	DMBM-08	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-06	DMTM-06	1
Additional Gusset Mounting Kit (Small)	DMGM-08	DMGM-08	Multiple
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	1 ea./ft.
Hose Clamp Kit (Small)	DMHC-001	DMHC-001	Multiple

*One 8ft. Length of Slot Cover needed for each foot of extrusion length.

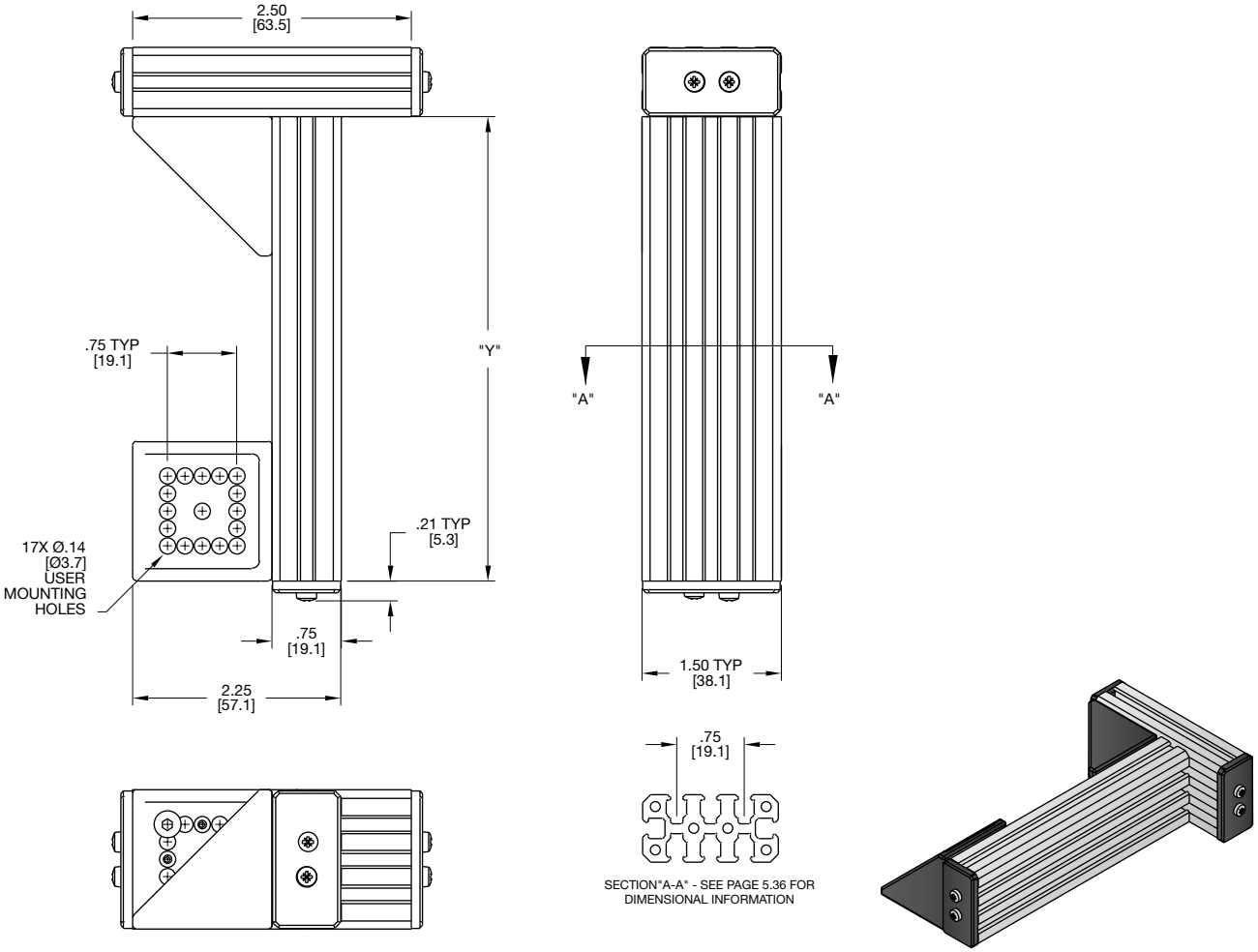






DIRECT CONNECT™

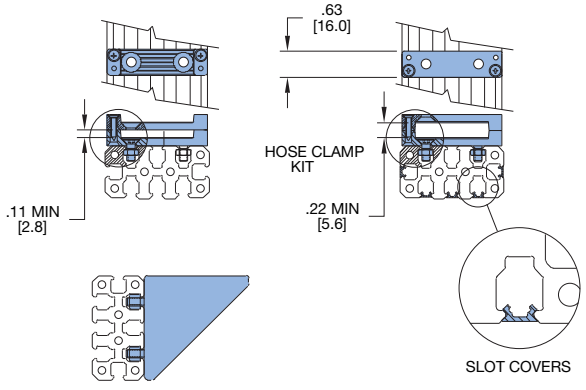
MOUNTING MODULE DMM-08-07



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)



BASIC MODEL

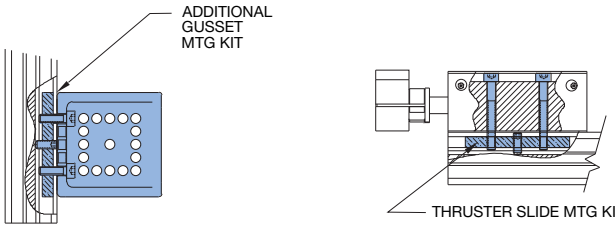
DMM-08-07-X.XX

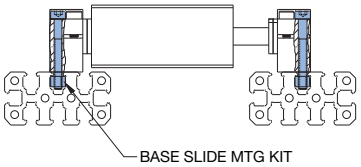
See drawing above. Increments of 0.01"

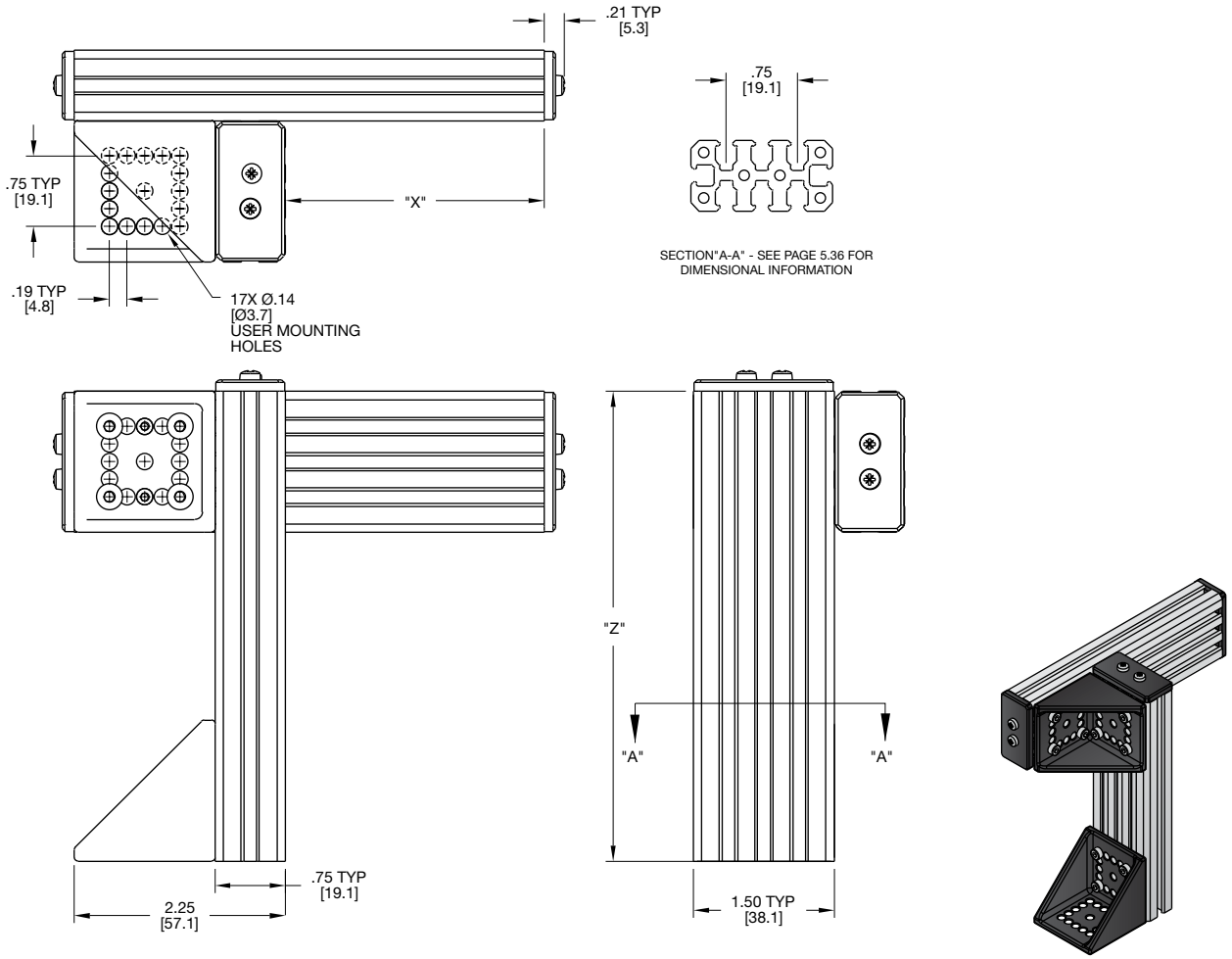
DIM "Y" Min: 3.00 in. Max: 12.00 in.

ACCESSORIES	SIZE -06	SIZE -08	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-06	DMBM-08	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-06	DMTM-06	1
Additional Gusset Mounting Kit (Small)	DMGM-08	DMGM-08	Multiple
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	1 ea./ft.
Hose Clamp Kit (Small)	DMHC-001	DMHC-001	Multiple

*One 8ft. Length of Slot Cover needed for each foot of extrusion length.



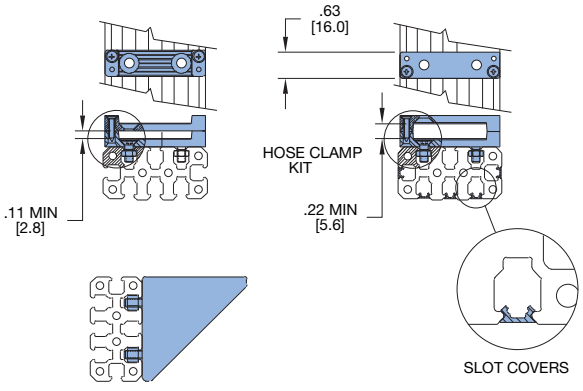




UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)



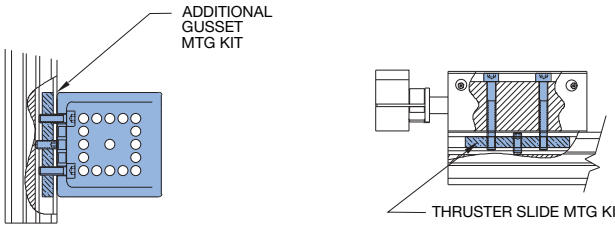
BASIC MODEL **DMM-08-08** - **X.XX** - **X.XX**

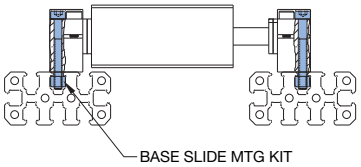
See drawing above. Increments of 0.01" DIM "X" Min: 0.00 in. Max: 6.00 in.

See drawing above. Increments of 0.01" DIM "Z" Min: 3.00 in. Max: 6.00 in.

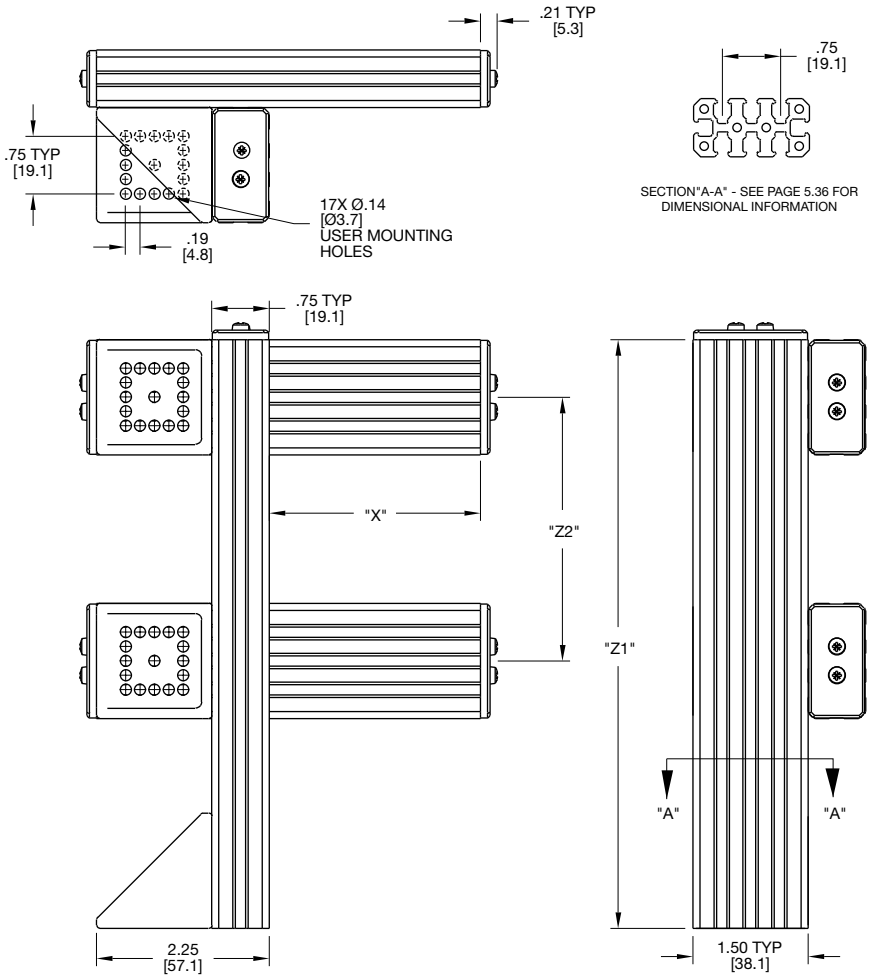
ACCESSORIES	SIZE -06	SIZE -08	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-06	DMBM-08	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-06	DMTM-06	1
Additional Gusset Mounting Kit (Small)	DMGM-08	DMGM-08	Multiple
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	1 ea./ft.
Hose Clamp Kit (Small)	DMHC-001	DMHC-001	Multiple

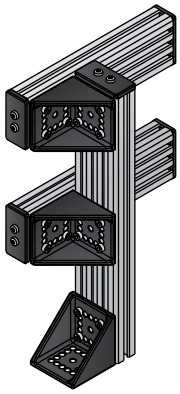
*One 8ft. Length of Slot Cover needed for each foot of extrusion length.





MOUNTING MODULE DMM-08-09

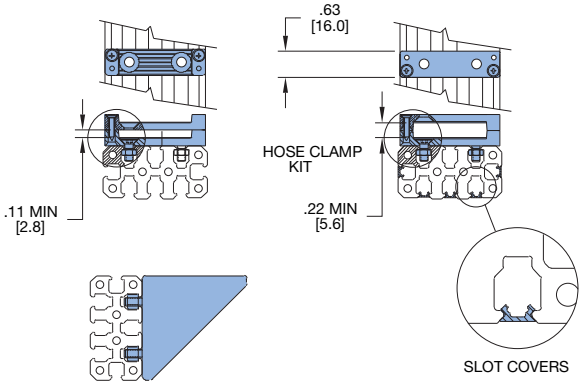


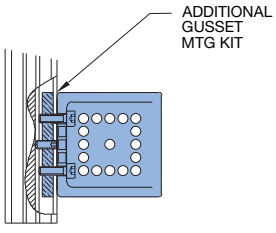


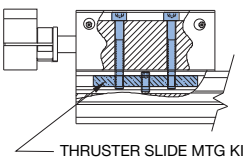
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

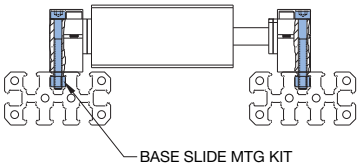
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)









BASIC MODEL

DMM-08-09 - X.XX - X.XX - X.XX

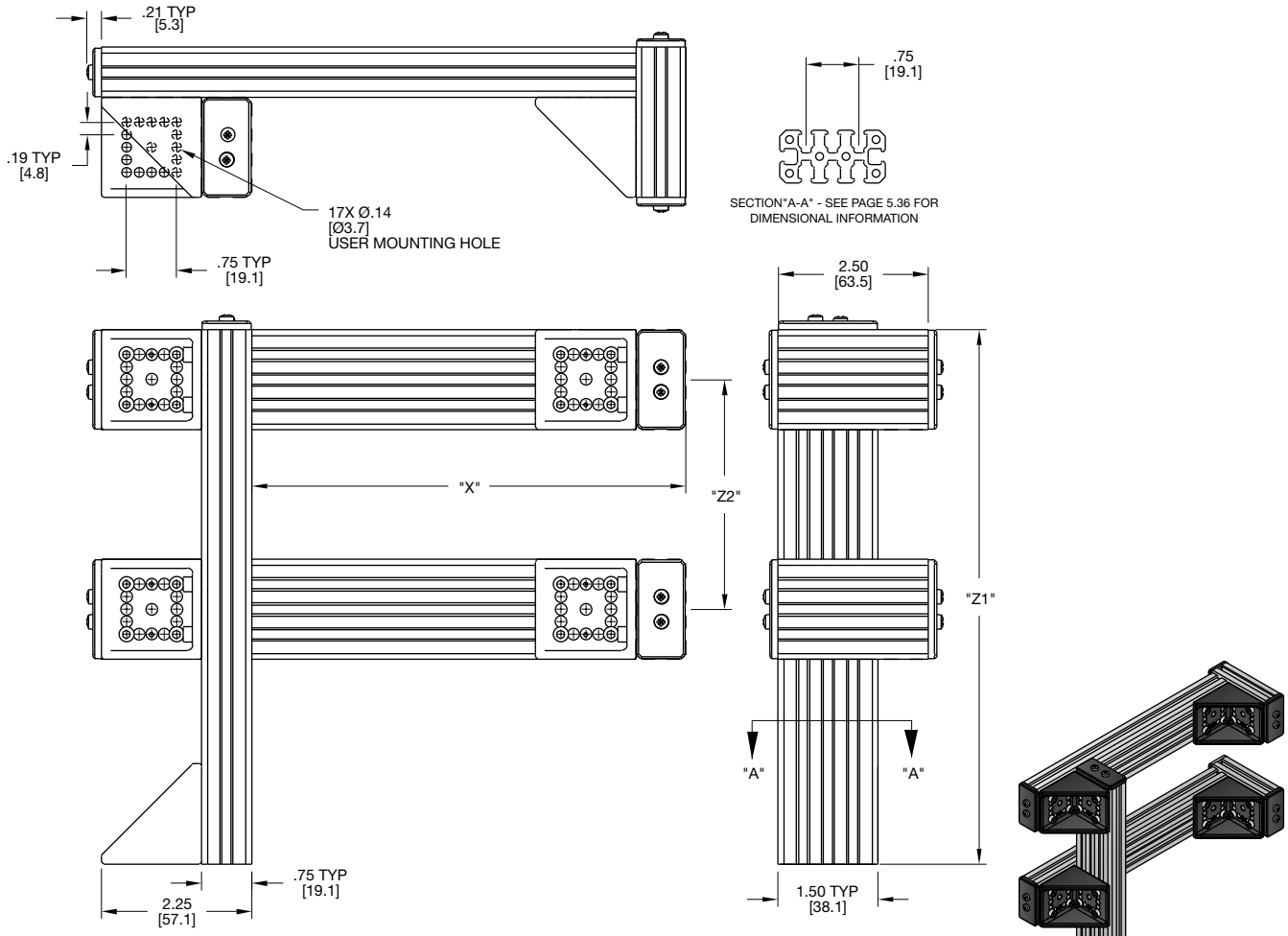
See drawing above. Increments of 0.01" **DIM "X"** Min: 0.0 in. Max: 6.00 in.

See drawing above. Increments of 0.01" **DIM "Z1"** Min: 4.50 in. Max:15.00 in.

DIM "Z2" Min: 3.00 in. Max: 12.00 in.

ACCESSORIES	SIZE -06	SIZE -08	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-06	DMBM-08	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-06	DMTM-06	1
Additional Gusset Mounting Kit (Small)	DMGM-08	DMGM-08	Multiple
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	1 ea./ft.
Hose Clamp Kit (Small)	DMHC-001	DMHC-001	Multiple

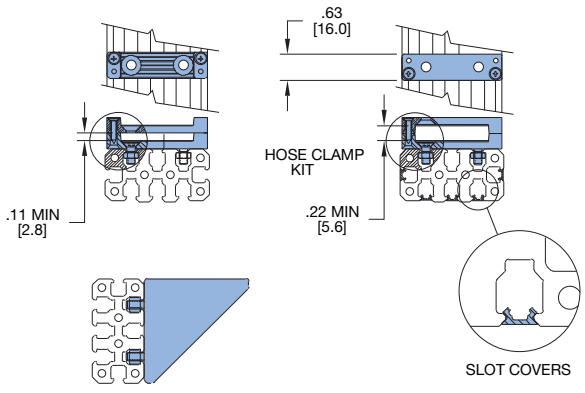
*One 8ft. Length of Slot Cover needed for each foot of extrusion length.



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)



BASIC MODEL

DMM-08-10 - X.XX - X.XX - X.XX

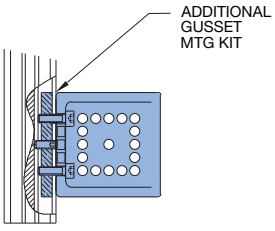
See drawing above. Increments of 0.01" — DIM "X" Min: 2.25 in. Max: 6.00 in.

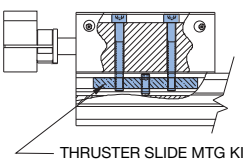
See drawing above. Increments of 0.01" — DIM "Z1" Min: 4.50 in. Max: 15.00 in.

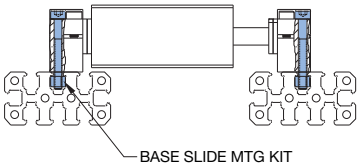
DIM "Z2" Min: 3.00 in. Max: 12.00 in.

ACCESSORIES	SIZE -06	SIZE -08	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-06	DMBM-08	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-06	DMTM-06	1
Additional Gusset Mounting Kit (Small)	DMGM-08	DMGM-08	Multiple
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	1 ea./ft.
Hose Clamp Kit (Small)	DMHC-001	DMHC-001	Multiple

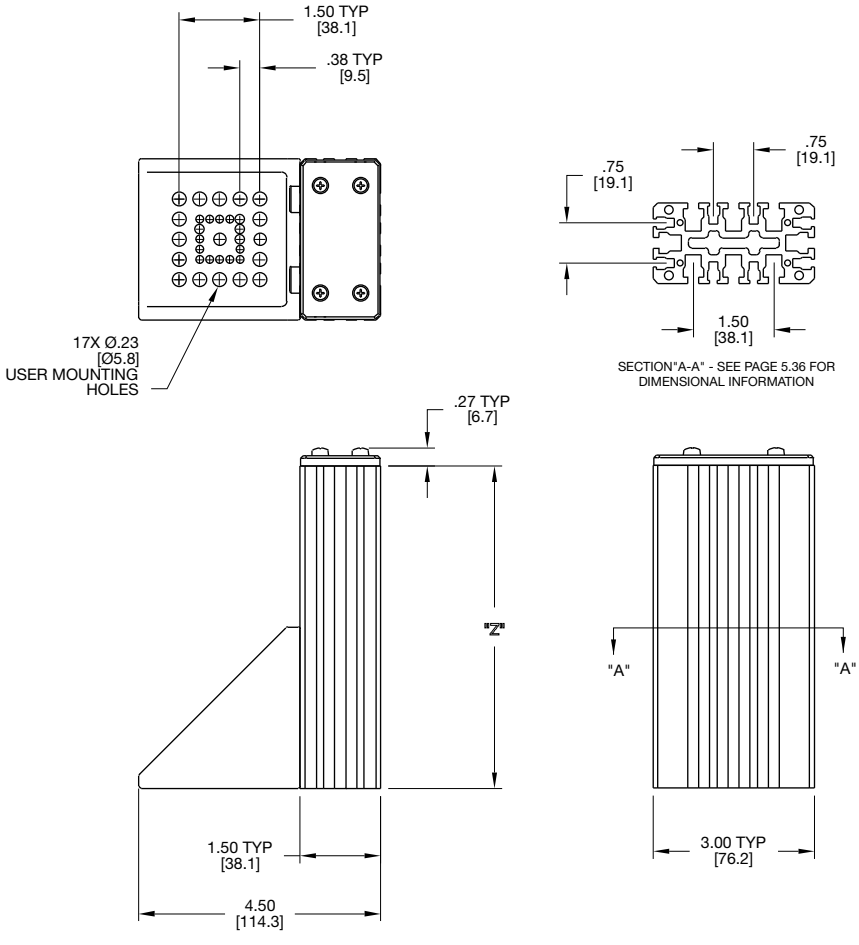
*One 8ft. Length of Slot Cover needed for each foot of extrusion length.

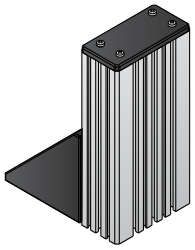






MOUNTING MODULE DMM-16-01

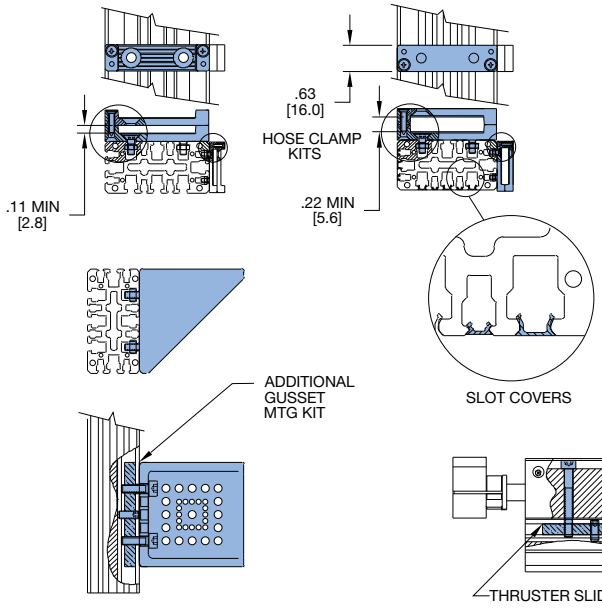




UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)



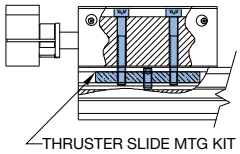
BASIC MODEL

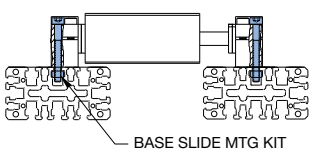
DMM-16-01-X.XX

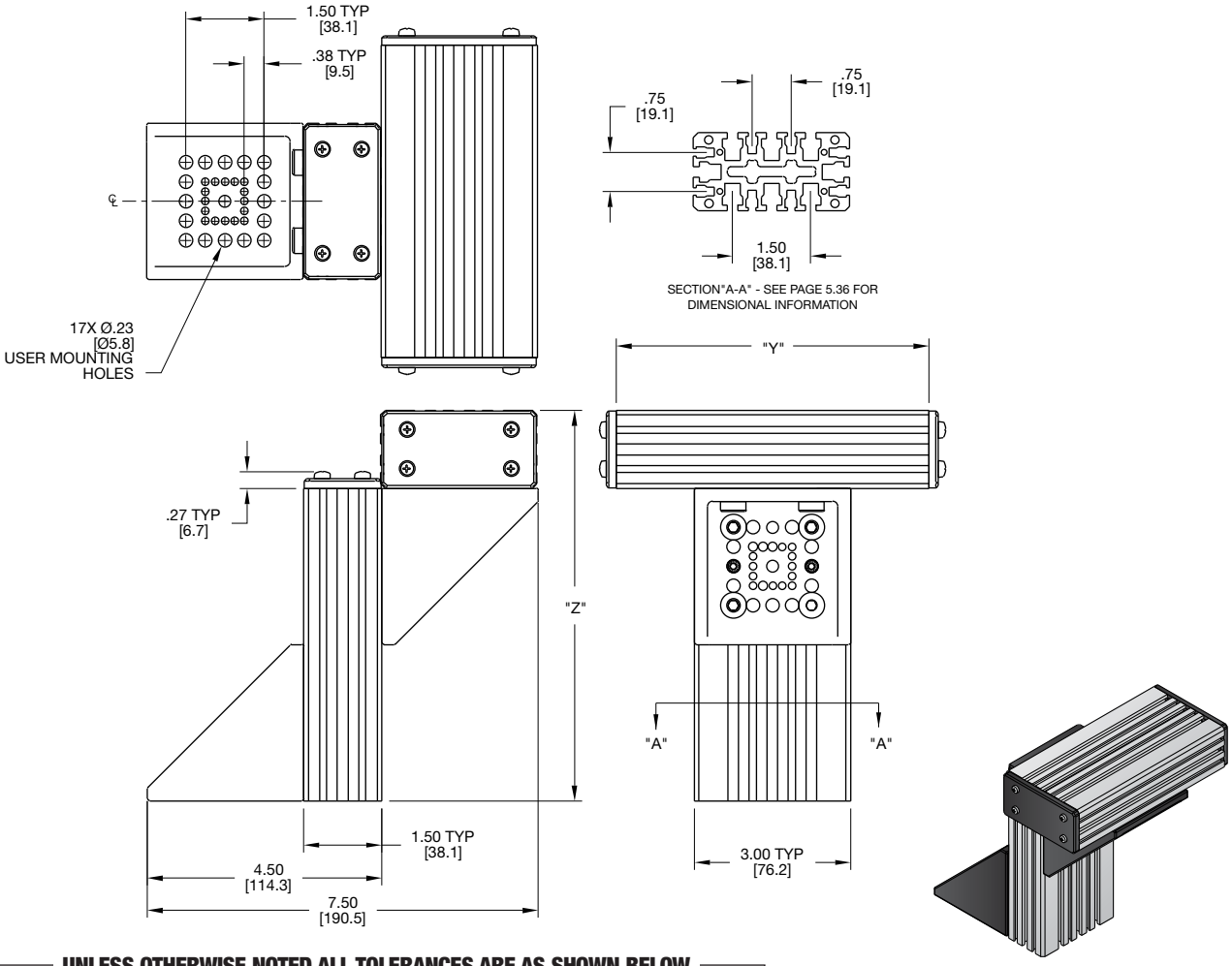
(See drawing above. Increments of 0.01") DIM "Z" Min: 4.75 in. Max: 24.00 in.

ACCESSORIES	SIZE -10	SIZE -12	SIZE -16	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-10	DMBM-12	DMBM-16	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-10	DMTM-12	DMTM-16	1
Additional Gusset Mounting Kit (Med.)	DMGM-16	DMGM-16	DMGM-16	Multiple
Additional Gusset Mounting Kit (Sm.)	DMGM-08	DMGM-08	DMGM-08	Multiple
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	DMSC-16	1 ea./ft.*
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	DMSC-08	1 ea./ft.*
Large Hose Clamp Kit	DMHC-002	DMHC-002	DHMC-002	Multiple
Small Hose Clamp Kit	DMHC-001	DMHC-001	DHMC-001	Multiple

*One 8ft. Length of Slot Cover needed for each foot of extrusion length.


THRUSTER SLIDE MTG KIT

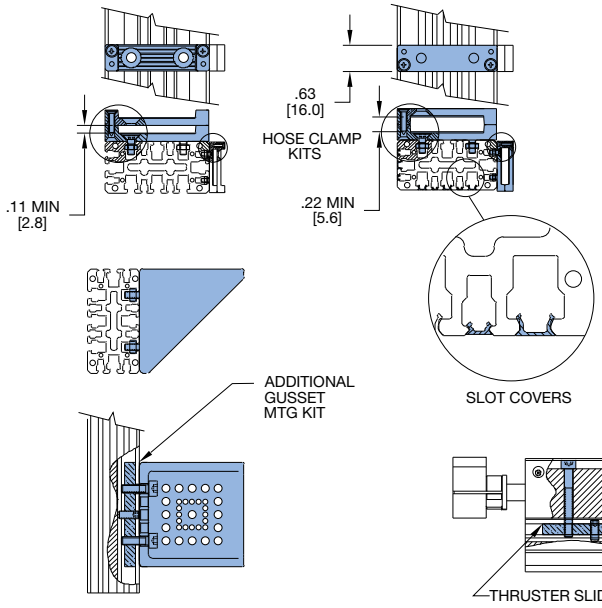

BASE SLIDE MTG KIT



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)



BASIC MODEL

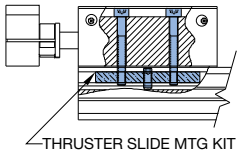
See drawing above. Increments of 0.01" DIM "Y" Min: 4.00 in. Max: 20.00 in.

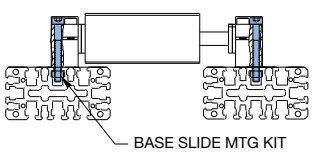
DMM-16-02 - X.XX - X.XX

See drawing above. Increments of 0.01" DIM "Z" Min: 4.50 in. Max: 24.00 in.

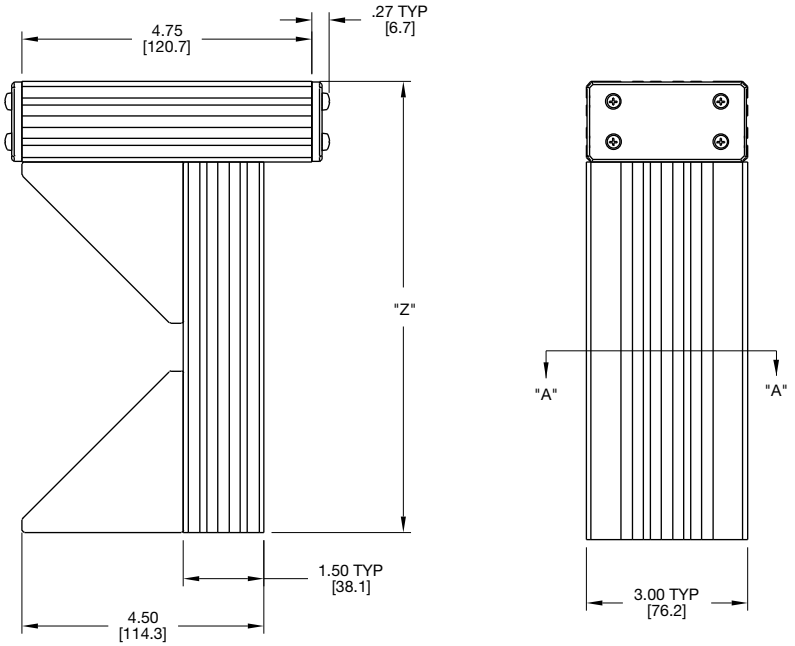
ACCESSORIES	SIZE -10	SIZE -12	SIZE -16	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-10	DMBM-12	DMBM-16	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-10	DMTM-12	DMTM-16	1
Additional Gusset Mounting Kit (Med.)	DMGM-16	DMGM-16	DMGM-16	Multiple
Additional Gusset Mounting Kit (Sm.)	DMGM-08	DMGM-08	DMGM-08	Multiple
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	DMSC-16	1 ea./ft.*
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	DMSC-08	1 ea./ft.*
Large Hose Clamp Kit	DMHC-002	DMHC-002	DHMC-002	Multiple
Small Hose Clamp Kit	DMHC-001	DMHC-001	DHMC-001	Multiple

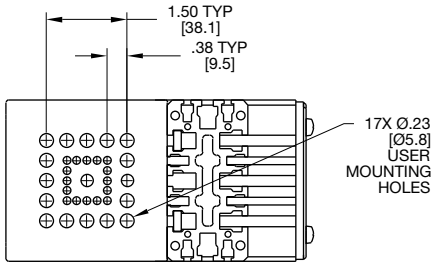
*One 8ft. Length of Slot Cover needed for each foot of extrusion length.

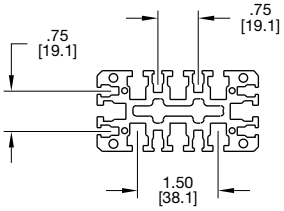




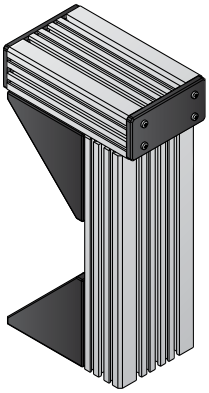
MOUNTING MODULE DMM-16-03







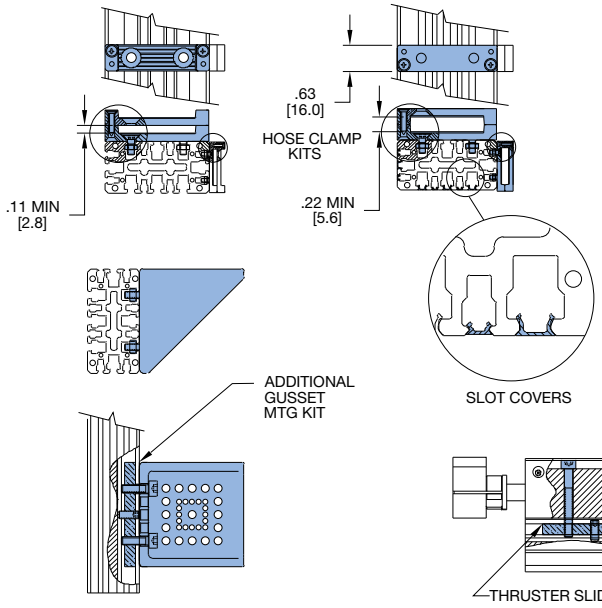
SECTION"A-A" - SEE PAGE 5.36 FOR DIMENSIONAL INFORMATION



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)



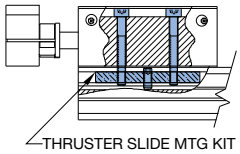
BASIC MODEL

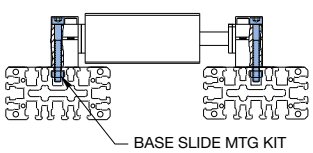
DMM-16-03-X.XX

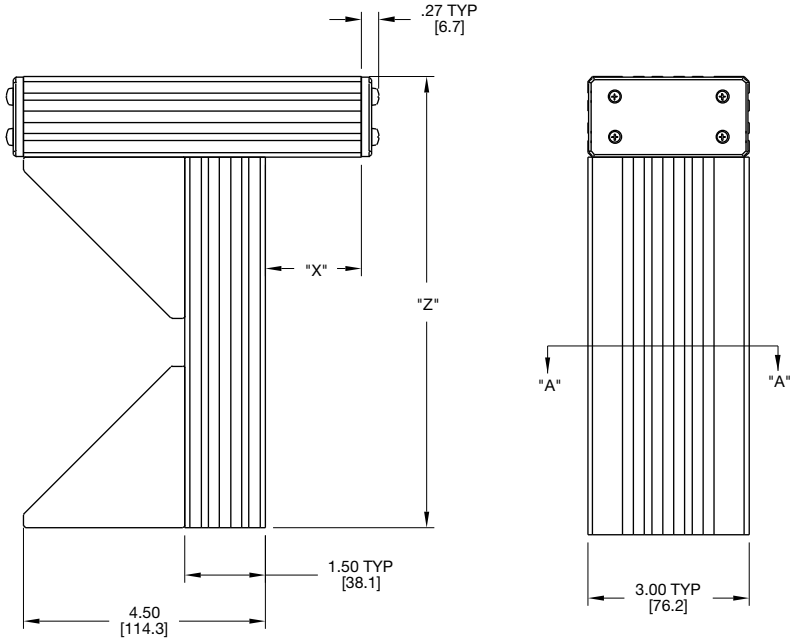
(See drawing above. Increments of 0.01") DIM "Z" Min: 7.50 in. Max: 24.00 in.

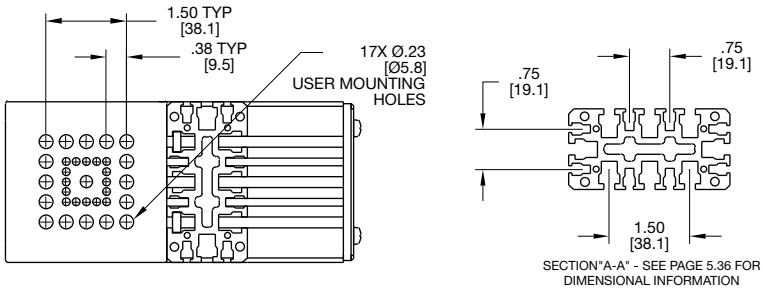
ACCESSORIES	SIZE -10	SIZE -12	SIZE -16	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-10	DMBM-12	DMBM-16	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-10	DMTM-12	DMTM-16	1
Additional Gusset Mounting Kit (Med.)	DMGM-16	DMGM-16	DMGM-16	Multiple
Additional Gusset Mounting Kit (Sm.)	DMGM-08	DMGM-08	DMGM-08	Multiple
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	DMSC-16	1 ea./ft.*
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	DMSC-08	1 ea./ft.*
Large Hose Clamp Kit	DMHC-002	DMHC-002	DHMC-002	Multiple
Small Hose Clamp Kit	DMHC-001	DMHC-001	DHMC-001	Multiple

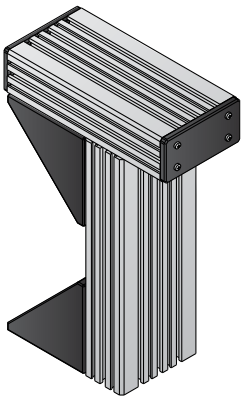
*One 8ft. Length of Slot Cover needed for each foot of extrusion length.


THRUSTER SLIDE MTG KIT


BASE SLIDE MTG KIT



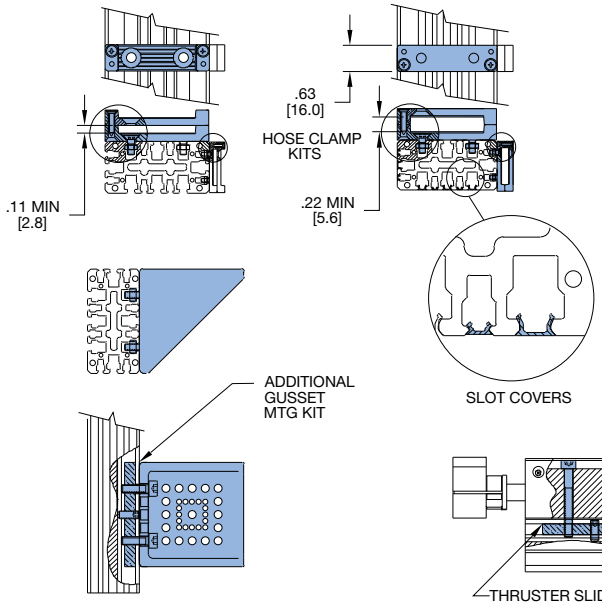




UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)



BASIC MODEL

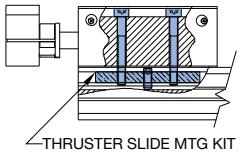
See drawing above. Increments of 0.01" DIM "X" Min: 0.00 in. Max: 12.00 in.

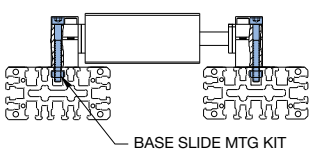
DMM-16-04 - X.XX - X.XX

See drawing above. Increments of 0.01" DIM "Z" Min: 7.50 in. Max: 24.00 in.

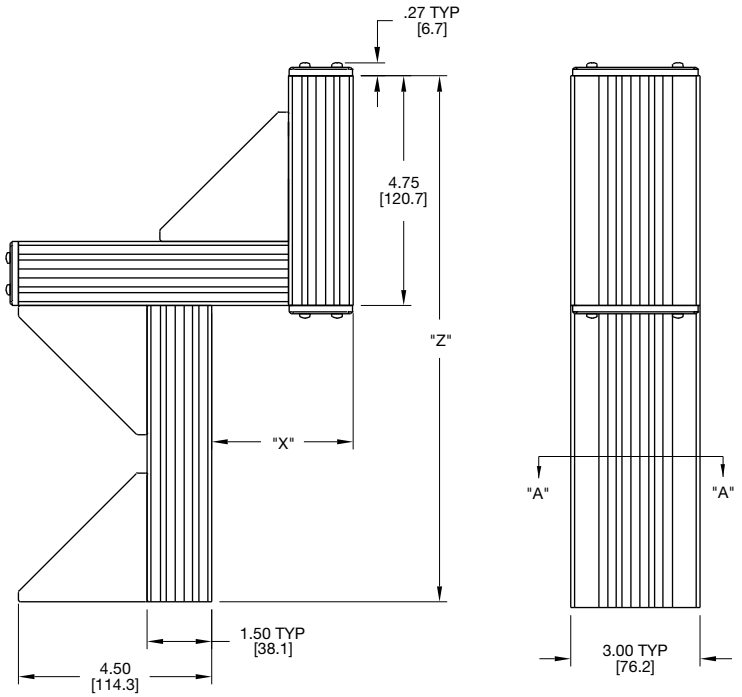
ACCESSORIES	SIZE -10	SIZE -12	SIZE -16	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-10	DMBM-12	DMBM-16	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-10	DMTM-12	DMTM-16	1
Additional Gusset Mounting Kit (Med.)	DMGM-16	DMGM-16	DMGM-16	Multiple
Additional Gusset Mounting Kit (Sm.)	DMGM-08	DMGM-08	DMGM-08	Multiple
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	DMSC-16	1 ea./ft.*
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	DMSC-08	1 ea./ft.*
Large Hose Clamp Kit	DMHC-002	DMHC-002	DHMC-002	Multiple
Small Hose Clamp Kit	DMHC-001	DMHC-001	DHMC-001	Multiple

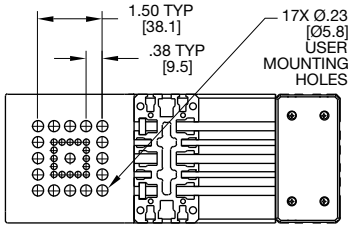
*One 8ft. Length of Slot Cover needed for each foot of extrusion length.

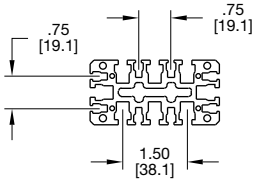




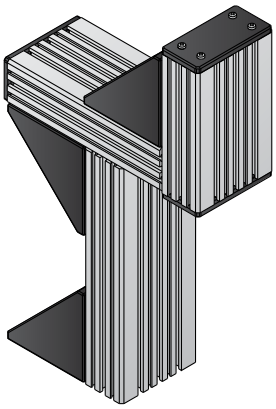
MOUNTING MODULE DMM-16-05







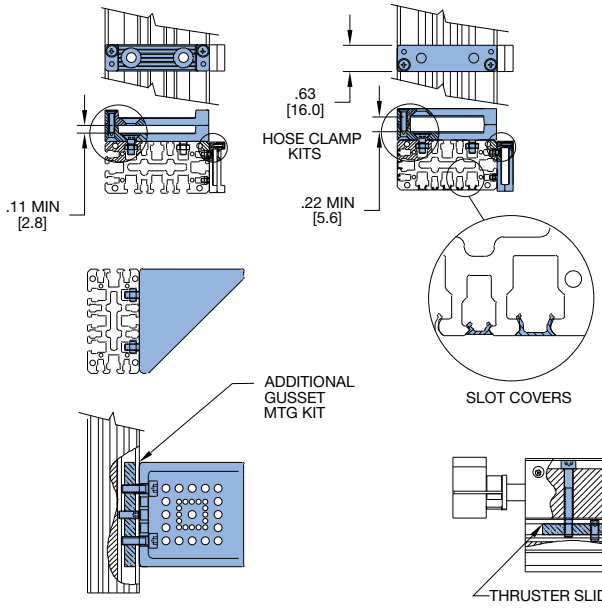
SECTION"A-A" - SEE PAGE 5.36 FOR DIMENSIONAL INFORMATION



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)



BASIC MODEL

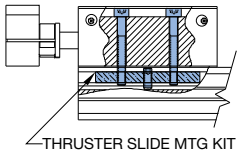
See drawing above. Increments of 0.01" DIM "X" Min: 1.50 in. Max: 12.00 in.

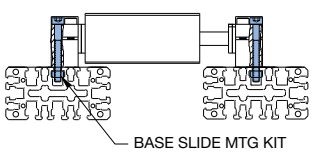
DMM-16-05 - X.XX - X.XX

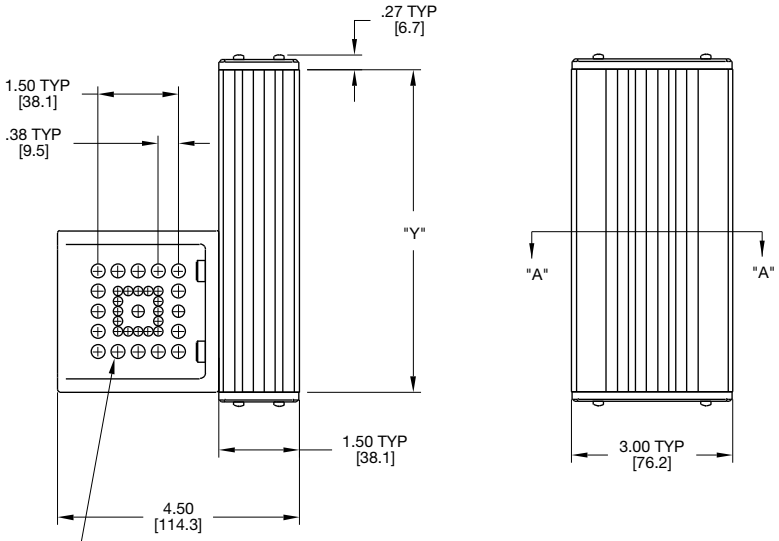
See drawing above. Increments of 0.01" DIM "Z" Min: 10.75 in. Max: 24.00 in.

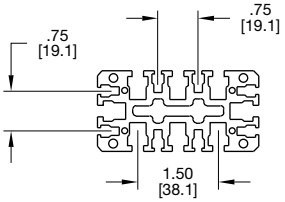
ACCESSORIES	SIZE -10	SIZE -12	SIZE -16	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-10	DMBM-12	DMBM-16	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-10	DMTM-12	DMTM-16	1
Additional Gusset Mounting Kit (Med.)	DMGM-16	DMGM-16	DMGM-16	Multiple
Additional Gusset Mounting Kit (Sm.)	DMGM-08	DMGM-08	DMGM-08	Multiple
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	DMSC-16	1 ea./ft.*
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	DMSC-08	1 ea./ft.*
Large Hose Clamp Kit	DMHC-002	DMHC-002	DHMC-002	Multiple
Small Hose Clamp Kit	DMHC-001	DMHC-001	DHMC-001	Multiple

*One 8ft. Length of Slot Cover needed for each foot of extrusion length.

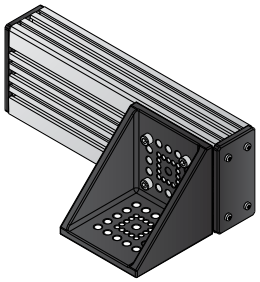








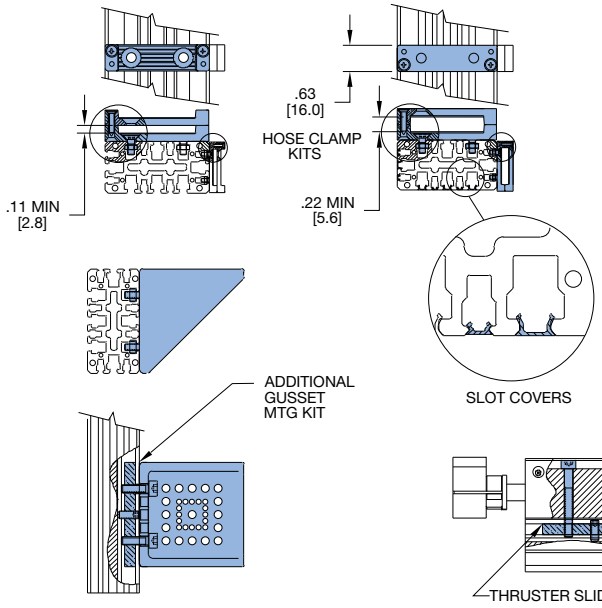
SECTION"A-A" - SEE PAGE 5.36 FOR DIMENSIONAL INFORMATION



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)



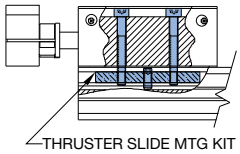
BASIC MODEL

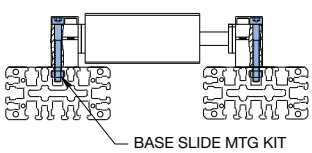
DMM-16-06 - X.XX

(See drawing above. Increments of 0.01") DIM "Y" Min: 4.75 in. Max: 24.00 in.

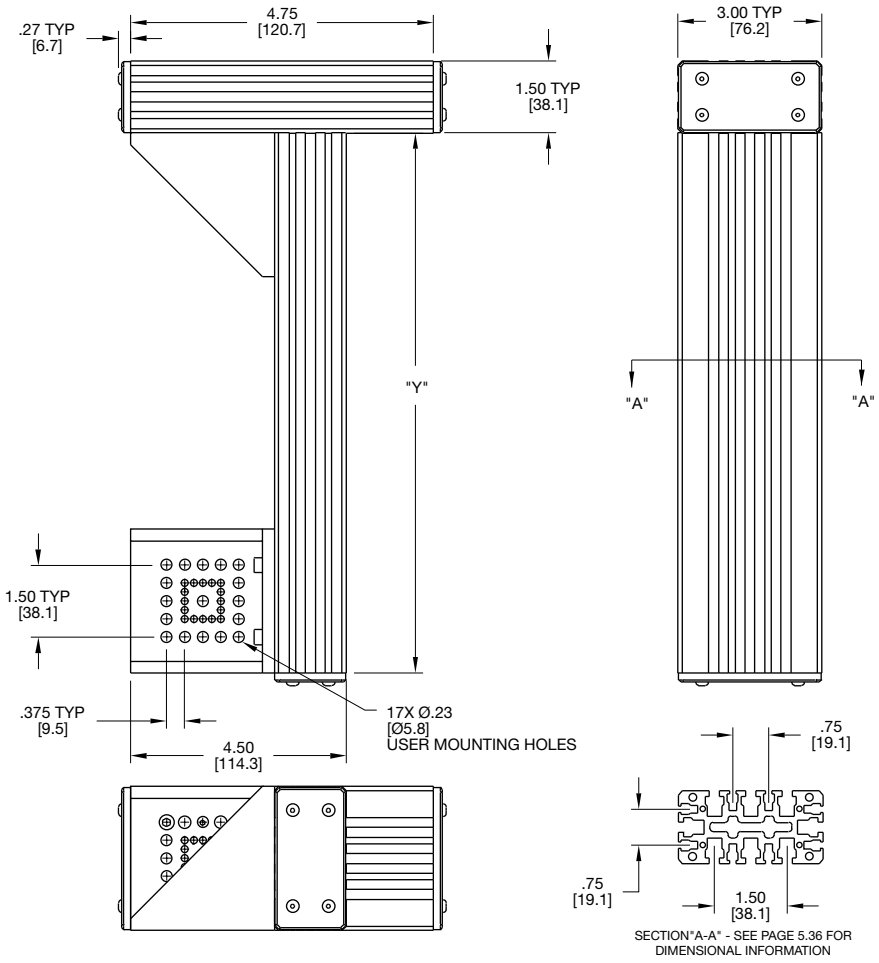
ACCESSORIES	SIZE -10	SIZE -12	SIZE -16	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-10	DMBM-12	DMBM-16	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-10	DMTM-12	DMTM-16	1
Additional Gusset Mounting Kit (Med.)	DMGM-16	DMGM-16	DMGM-16	Multiple
Additional Gusset Mounting Kit (Sm.)	DMGM-08	DMGM-08	DMGM-08	Multiple
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	DMSC-16	1 ea./ft.*
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	DMSC-08	1 ea./ft.*
Large Hose Clamp Kit	DMHC-002	DMHC-002	DHMC-002	Multiple
Small Hose Clamp Kit	DMHC-001	DMHC-001	DHMC-001	Multiple

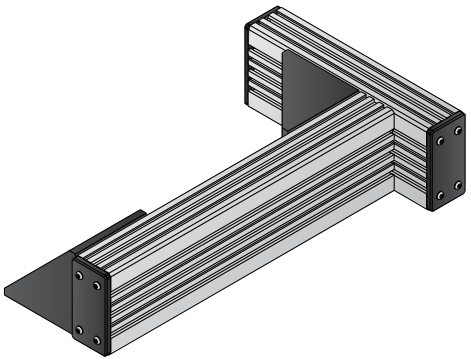
*One 8ft. Length of Slot Cover needed for each foot of extrusion length.


THRUSTER SLIDE MTG KIT


BASE SLIDE MTG KIT

MOUNTING MODULE DMM-16-07

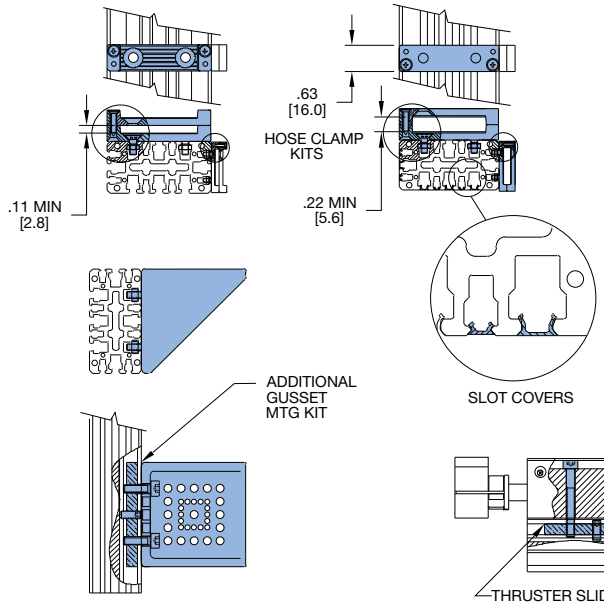




UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)



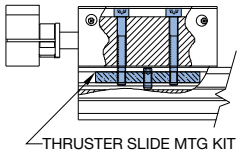
BASIC MODEL

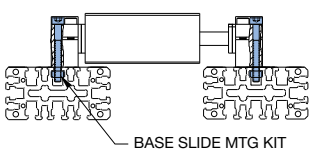
DMM-16-07-X.XX

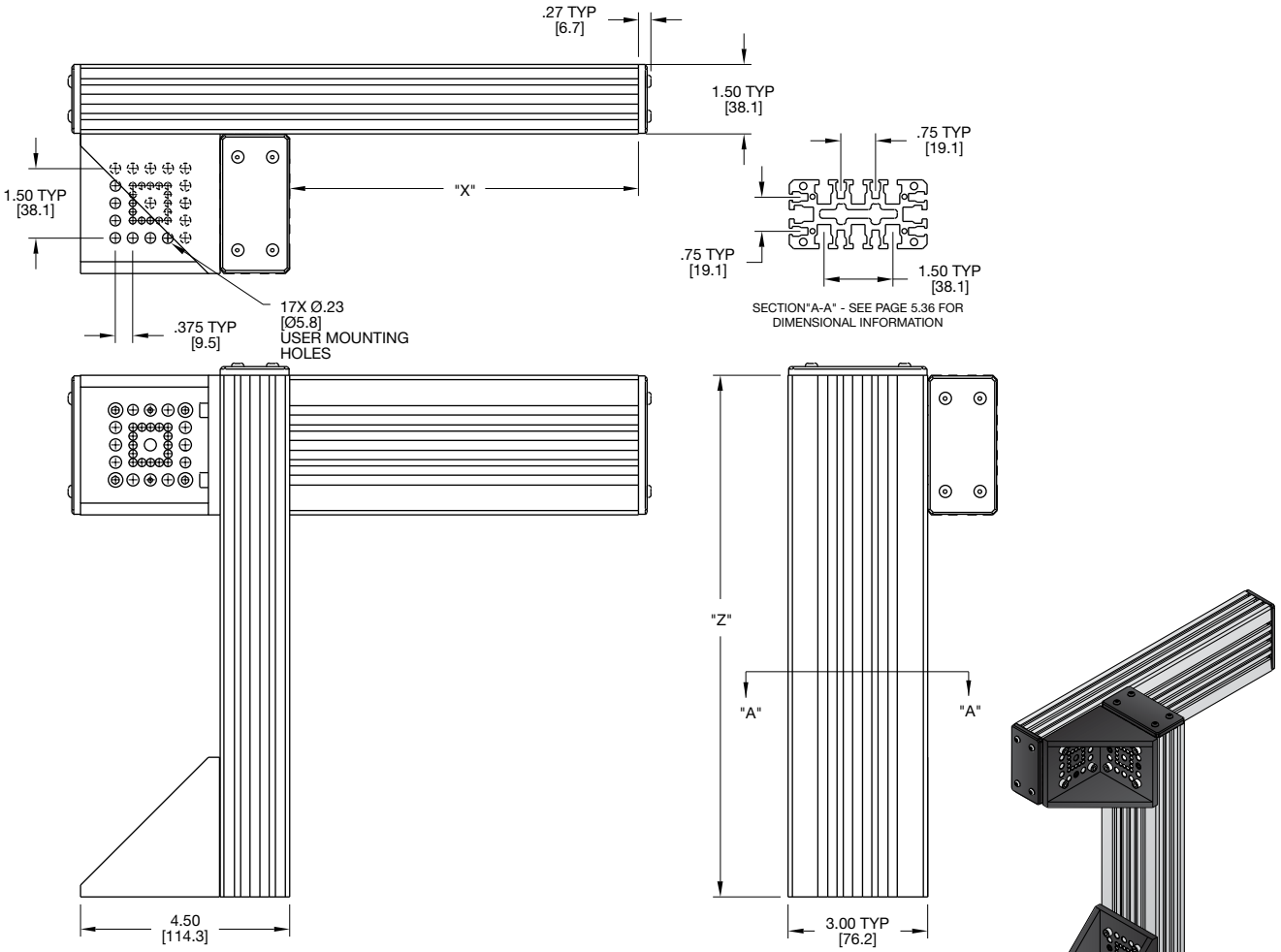
(See drawing above. Increments of 0.01") DIM "Y" Min: 6.00 in. Max: 24.00 in.

ACCESSORIES	SIZE -10	SIZE -12	SIZE -16	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-10	DMBM-12	DMBM-16	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-10	DMTM-12	DMTM-16	1
Additional Gusset Mounting Kit (Med.)	DMGM-16	DMGM-16	DMGM-16	Multiple
Additional Gusset Mounting Kit (Sm.)	DMGM-08	DMGM-08	DMGM-08	Multiple
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	DMSC-16	1 ea./ft.*
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	DMSC-08	1 ea./ft.*
Large Hose Clamp Kit	DMHC-002	DMHC-002	DHMC-002	Multiple
Small Hose Clamp Kit	DMHC-001	DMHC-001	DHMC-001	Multiple

*One 8ft. Length of Slot Cover needed for each foot of extrusion length.


THRUSTER SLIDE MTG KIT

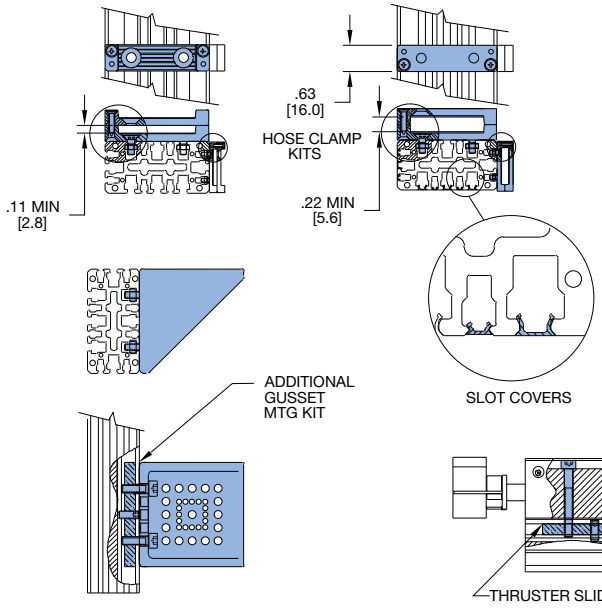

BASE SLIDE MTG KIT



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)



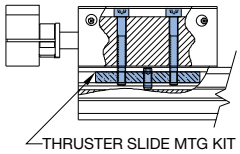
BASIC MODEL **DMM-16-08** - **X.XX** - **X.XX**

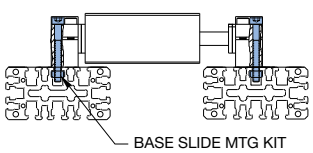
See drawing above. Increments of 0.01" **DIM "X"** Min: 0.00 in. Max: 12.00 in.

See drawing above. Increments of 0.01" **DIM "Z"** Min: 6.00 in. Max: 24.00 in.

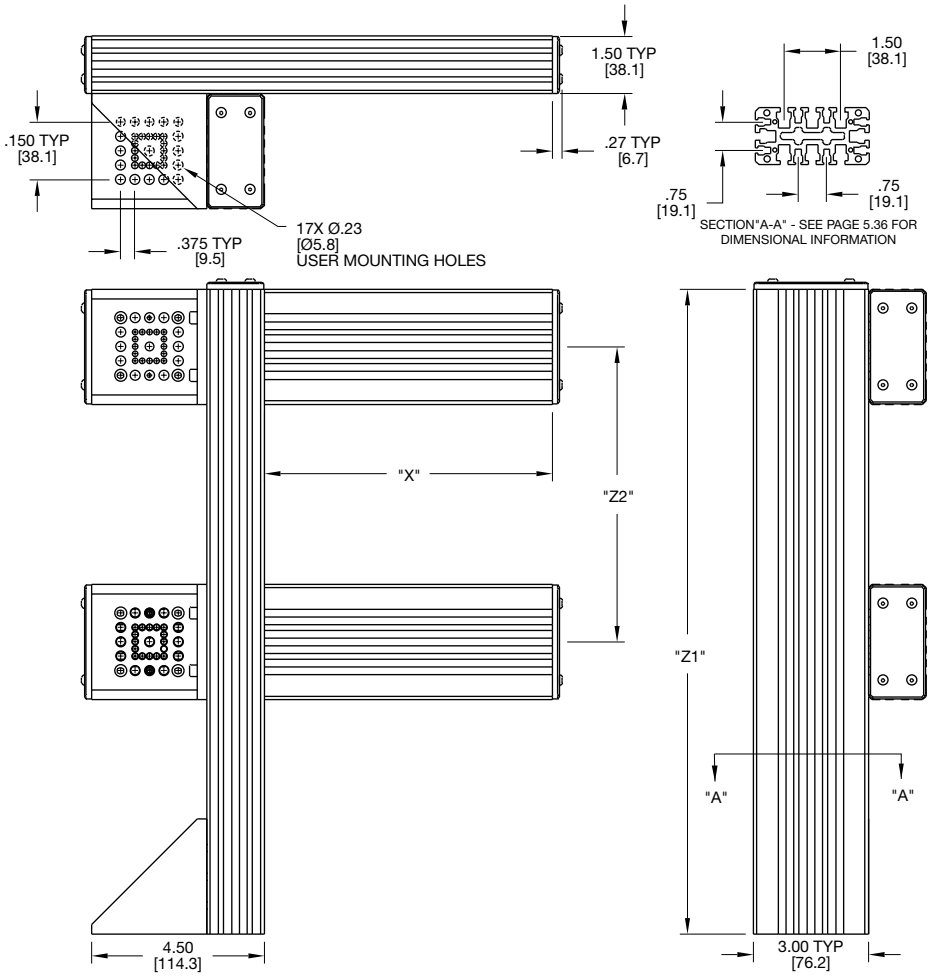
ACCESSORIES	SIZE -10	SIZE -12	SIZE -16	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-10	DMBM-12	DMBM-16	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-10	DMTM-12	DMTM-16	1
Additional Gusset Mounting Kit (Med.)	DMGM-16	DMGM-16	DMGM-16	Multiple
Additional Gusset Mounting Kit (Sm.)	DMGM-08	DMGM-08	DMGM-08	Multiple
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	DMSC-16	1 ea./ft.*
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	DMSC-08	1 ea./ft.*
Large Hose Clamp Kit	DMHC-002	DMHC-002	DHMC-002	Multiple
Small Hose Clamp Kit	DMHC-001	DMHC-001	DHMC-001	Multiple

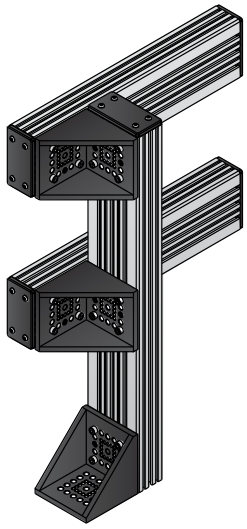
*One 8ft. Length of Slot Cover needed for each foot of extrusion length.





MOUNTING MODULE DMM-16-09

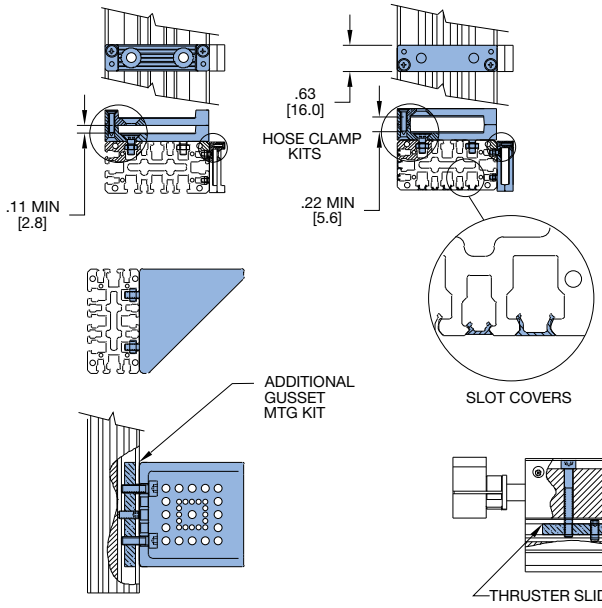




UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)



BASIC MODEL

DMM-16-09 - X.XX - X.XX - X.XX

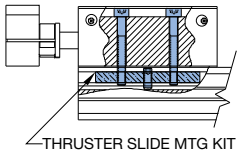
See drawing above. Increments of 0.01" **DIM "X"** Min: 0.00 in. Max: 14.00 in.

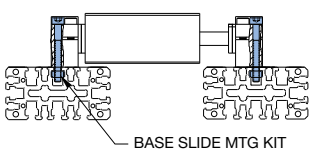
See drawing above. Increments of 0.01" **DIM "Z1"** Min: 9.00 in. Max: 33.00 in.

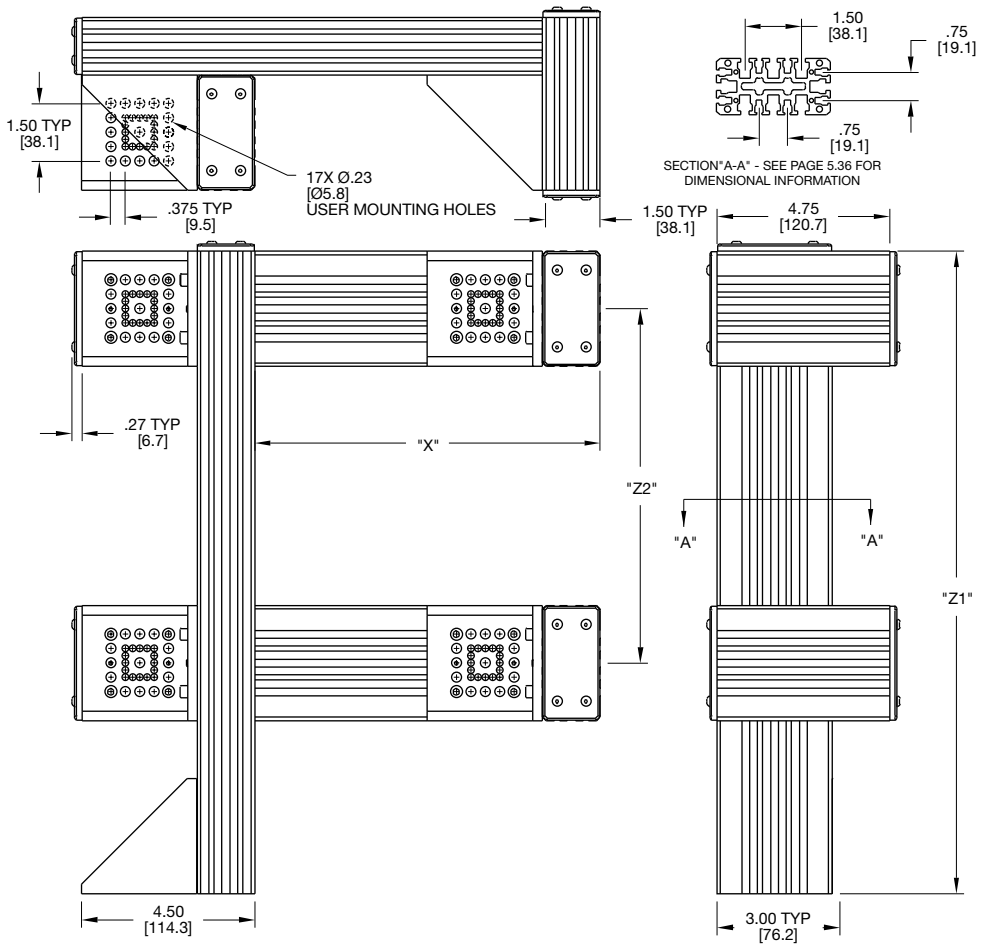
DIM "Z2" Min: 3.00 in. Max: 27.00 in.

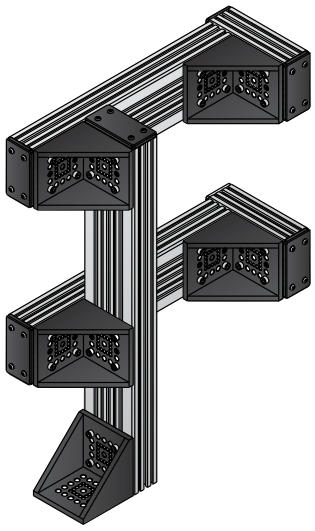
ACCESSORIES	SIZE -10	SIZE -12	SIZE -16	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-10	DMBM-12	DMBM-16	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-10	DMTM-12	DMTM-16	1
Additional Gusset Mounting Kit (Med.)	DMGM-16	DMGM-16	DMGM-16	Multiple
Additional Gusset Mounting Kit (Sm.)	DMGM-08	DMGM-08	DMGM-08	Multiple
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	DMSC-16	1 ea./ft.*
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	DMSC-08	1 ea./ft.*
Large Hose Clamp Kit	DMHC-002	DMHC-002	DHMC-002	Multiple
Small Hose Clamp Kit	DMHC-001	DMHC-001	DHMC-001	Multiple

*One 8ft. Length of Slot Cover needed for each foot of extrusion length.


THRUSTER SLIDE MTG KIT


BASE SLIDE MTG KIT

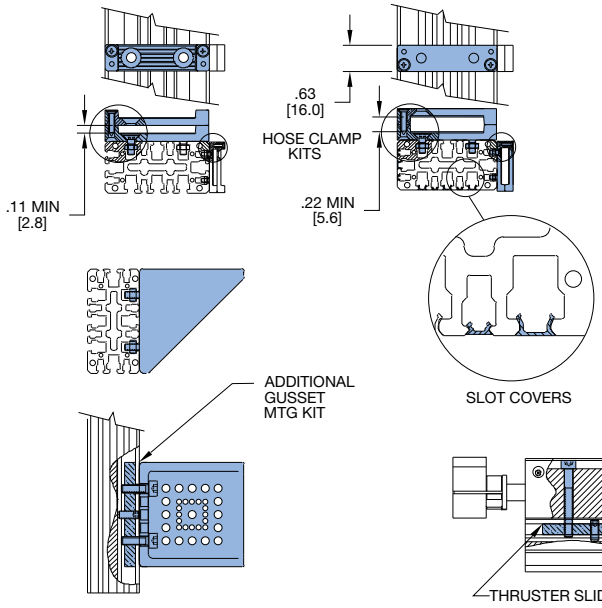




UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)



BASIC MODEL

DMM-16-10 - X.XX - X.XX - X.XX

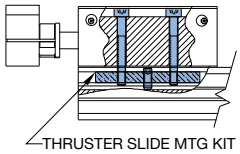
See drawing above. Increments of 0.01" — DIM "X" Min: 4.50 in. Max: 14.00 in.

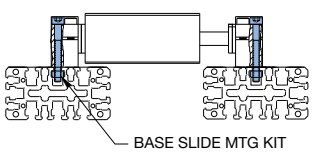
See drawing above. Increments of 0.01" — DIM "Z1" Min: 9.00 in. Max: 33.00 in.

DIM "Z2" Min: 3.00 in. Max: 27.00 in.

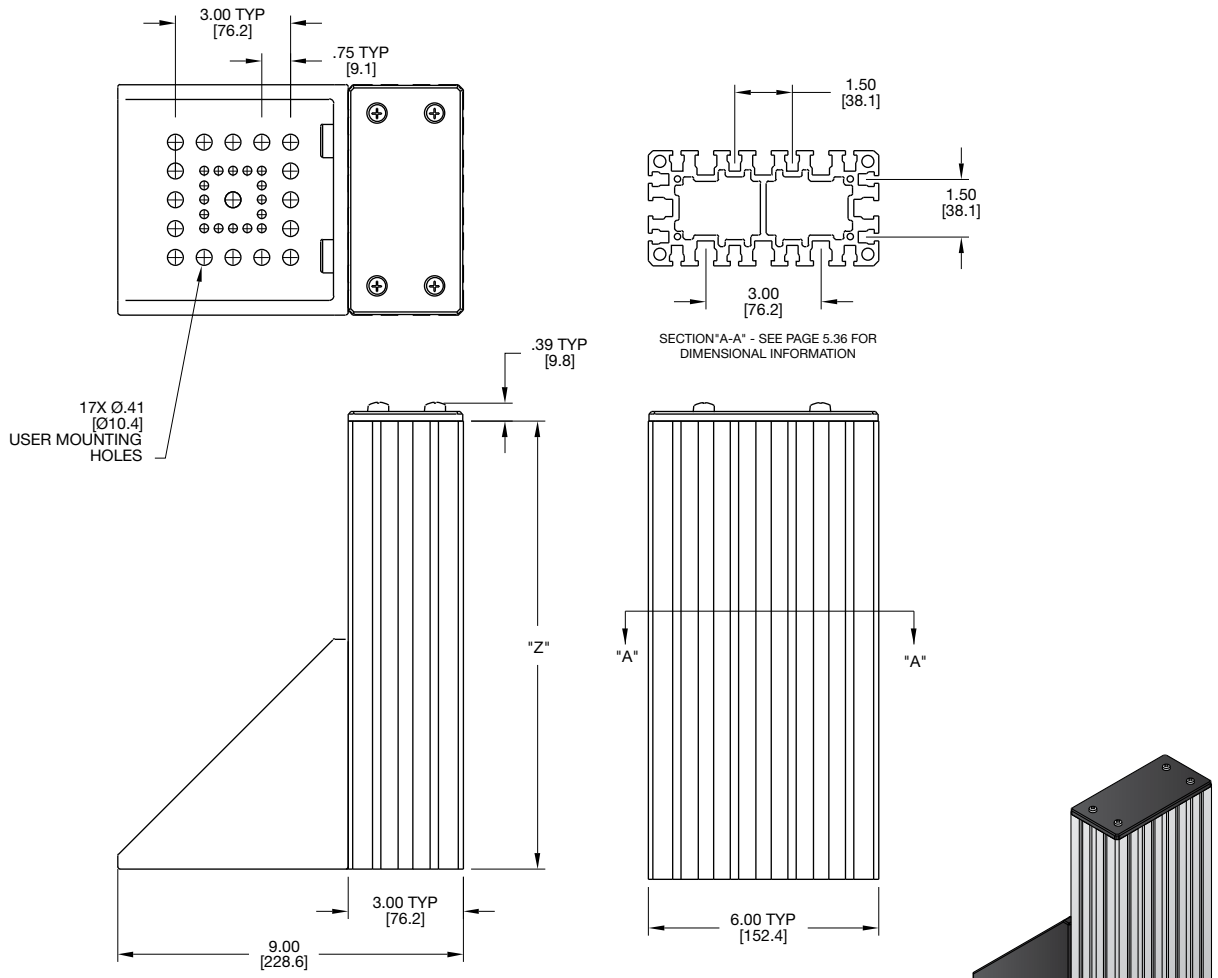
ACCESSORIES	SIZE -10	SIZE -12	SIZE -16	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-10	DMBM-12	DMBM-16	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-10	DMTM-12	DMTM-16	1
Additional Gusset Mounting Kit (Med.)	DMGM-16	DMGM-16	DMGM-16	Multiple
Additional Gusset Mounting Kit (Sm.)	DMGM-08	DMGM-08	DMGM-08	Multiple
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	DMSC-16	1 ea./ft.*
Small Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08	DMSC-08	1 ea./ft.*
Large Hose Clamp Kit	DMHC-002	DMHC-002	DMHC-002	Multiple
Small Hose Clamp Kit	DMHC-001	DMHC-001	DMHC-001	Multiple

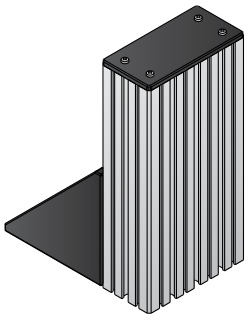
*One 8ft. Length of Slot Cover needed for each foot of extrusion length.


THRUSTER SLIDE MTG KIT


BASE SLIDE MTG KIT

MOUNTING MODULE DMM-25-01

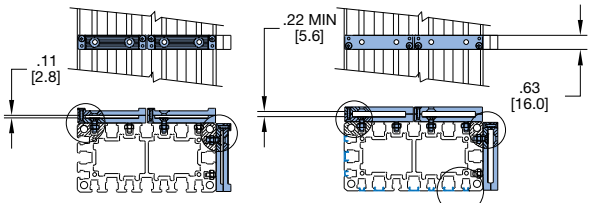




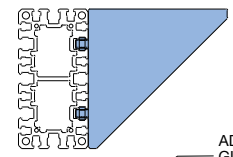
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

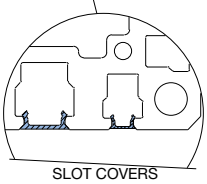
How to Order: (Order Accessories separately from Basic Model)



HOSE CLAMP KITS [3 KITS SHOWN EACH VIEW]



ADDITIONAL GUSSET MTG KIT



SLOT COVERS

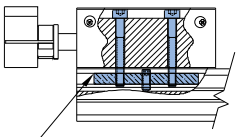
BASIC MODEL

DMM-25-01 - X.XX

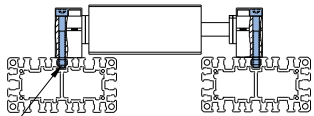
(See drawing above. Increments of 0.01") DIM "Z" Min: 7.50 in. Max: 36.00 in.

ACCESSORIES	SIZE -20	SIZE -25	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-20	DMBM-25	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-20	DMTM-25	1
Additional Gusset Mounting Kit (Large)	DMGM-25	DMGM-25	Multiple
Additional Gusset Mounting Kit (Medium)	DMGM-16	DMGM-25	Multiple
Large Slot Covers (8ft. Lengths Only)	DMSC-25	DMSC-25	1 ea./ft.*
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	1.5 ea./ft.**
Large Hose Clamp Kit	DMHC-002	DMHC-002	Multiple

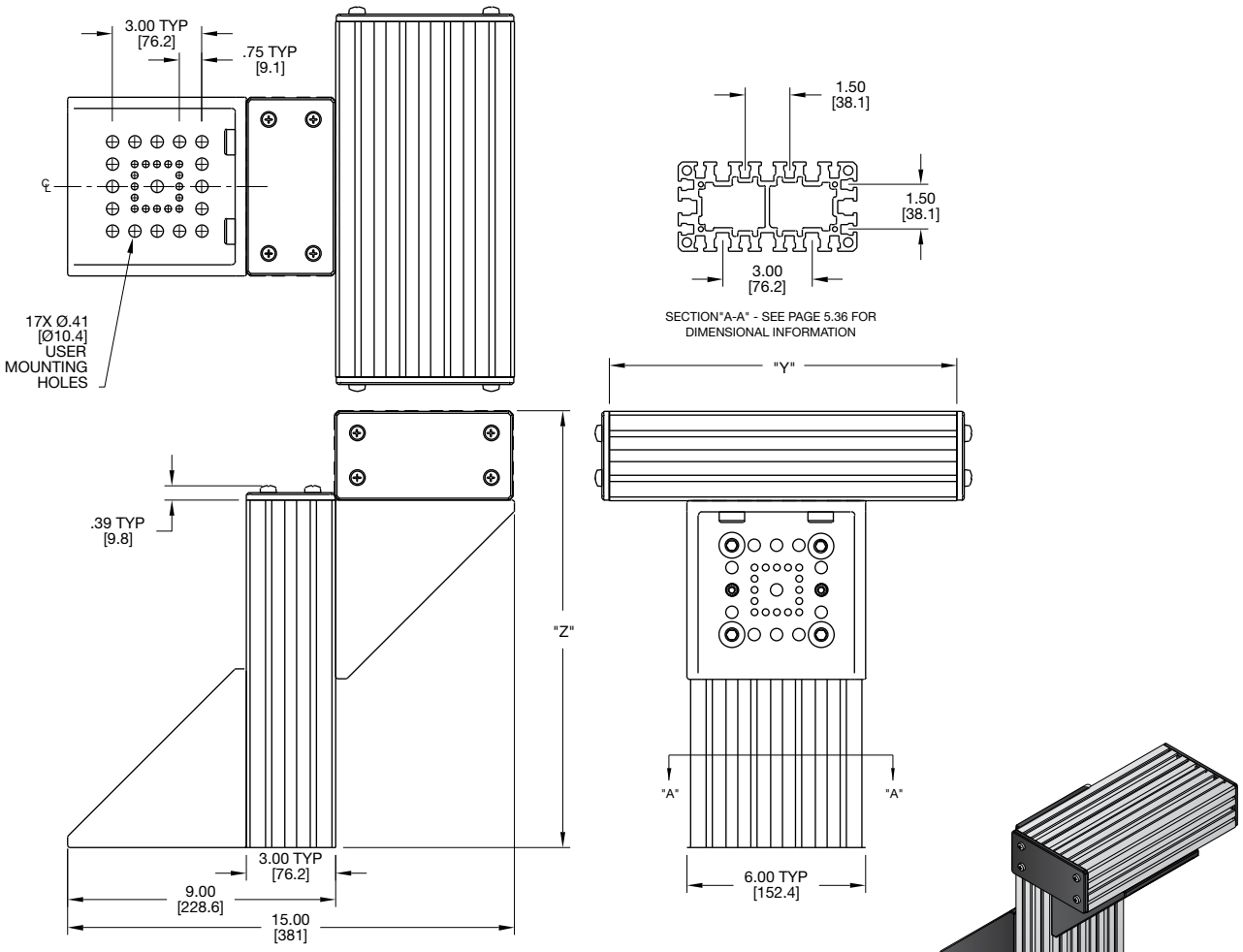
*One 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.
**One and one half 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.

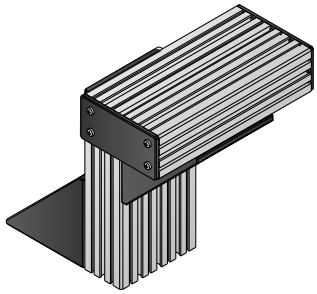


THRUSTER SLIDE MTG KIT



BASE SLIDE MTG KIT

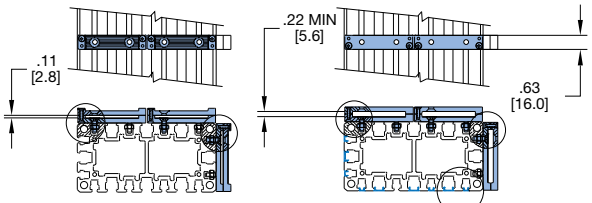




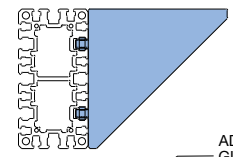
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

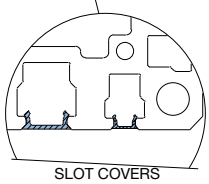
How to Order: (Order Accessories separately from Basic Model)



HOSE CLAMP KITS [3 KITS SHOWN EACH VIEW]



ADDITIONAL GUSSET MTG KIT



SLOT COVERS

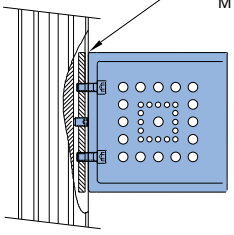
BASIC MODEL **DMM-25-02** - **X.XX** - **X.XX**

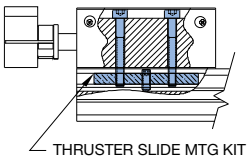
See drawing above. Increments of 0.01" DIM "Y" Min: 7.50 in. Max: 25.00 in.

See drawing above. Increments of 0.01" DIM "Z" Min: 15.00 in. Max: 36.00 in.

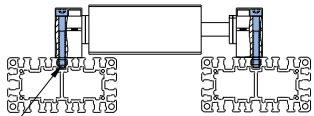
ACCESSORIES	SIZE -20	SIZE -25	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-20	DMBM-25	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-20	DMTM-25	1
Additional Gusset Mounting Kit (Large)	DMGM-25	DMGM-25	Multiple
Additional Gusset Mounting Kit (Medium)	DMGM-16	DMGM-25	Multiple
Large Slot Covers (8ft. Lengths Only)	DMSC-25	DMSC-25	1 ea./ft.*
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	1.5 ea./ft.**
Large Hose Clamp Kit	DMHC-002	DMHC-002	Multiple

*One 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.
**One and one half 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.



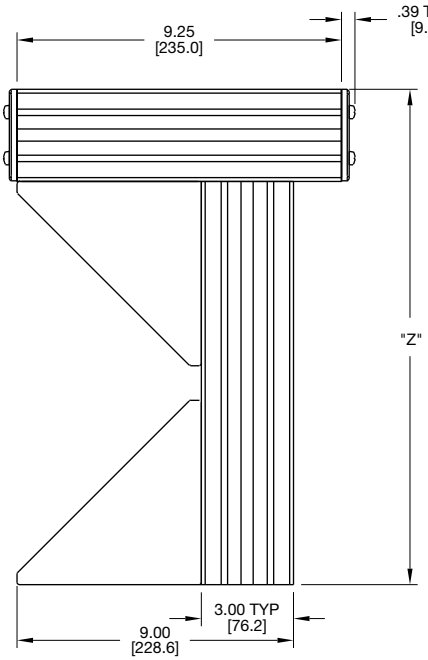


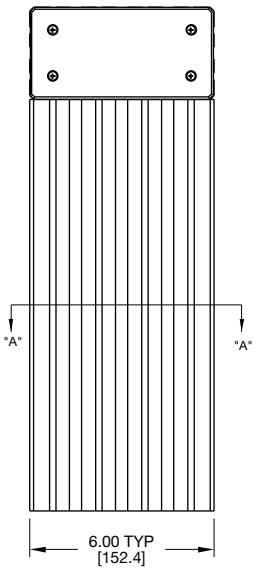
THRUSTER SLIDE MTG KIT

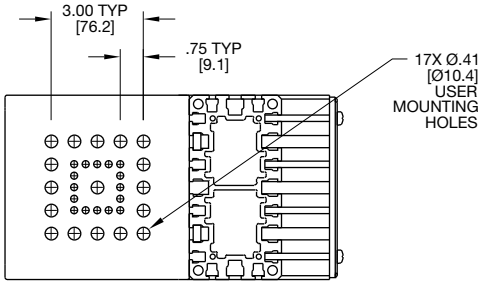


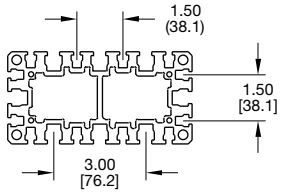
BASE SLIDE MTG KIT

MOUNTING MODULE DMM-25-03

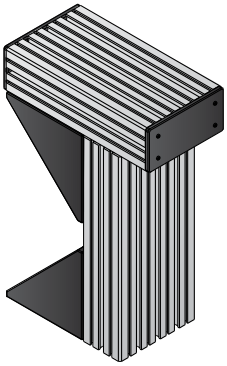








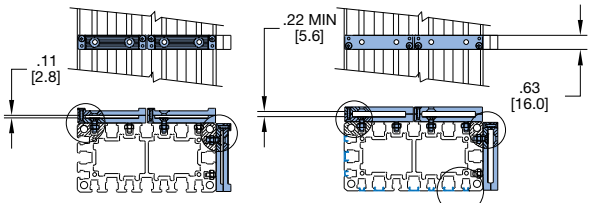
SECTION"A-A" - SEE PAGE 5.36 FOR DIMENSIONAL INFORMATION



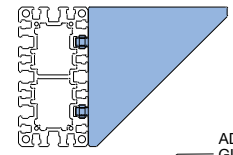
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

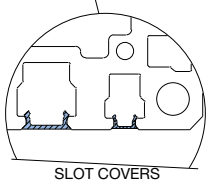
How to Order: (Order Accessories separately from Basic Model)



HOSE CLAMP KITS [3 KITS SHOWN EACH VIEW]



ADDITIONAL GUSSET MTG KIT



SLOT COVERS

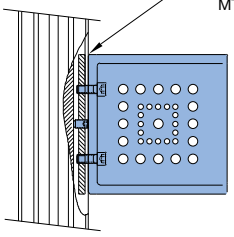
BASIC MODEL

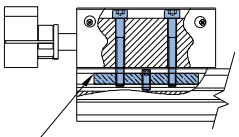
DMM-25-03 - X.XX

(See drawing above. Increments of 0.01") DIM "Z" Min: 15.00 in. Max: 36.00 in.

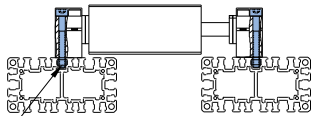
ACCESSORIES	SIZE -20	SIZE -25	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-20	DMBM-25	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-20	DMTM-25	1
Additional Gusset Mounting Kit (Large)	DMGM-25	DMGM-25	Multiple
Additional Gusset Mounting Kit (Medium)	DMGM-16	DMGM-25	Multiple
Large Slot Covers (8ft. Lengths Only)	DMSC-25	DMSC-25	1 ea./ft.*
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	1.5 ea./ft.**
Large Hose Clamp Kit	DMHC-002	DMHC-002	Multiple

*One 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.
**One and one half 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.

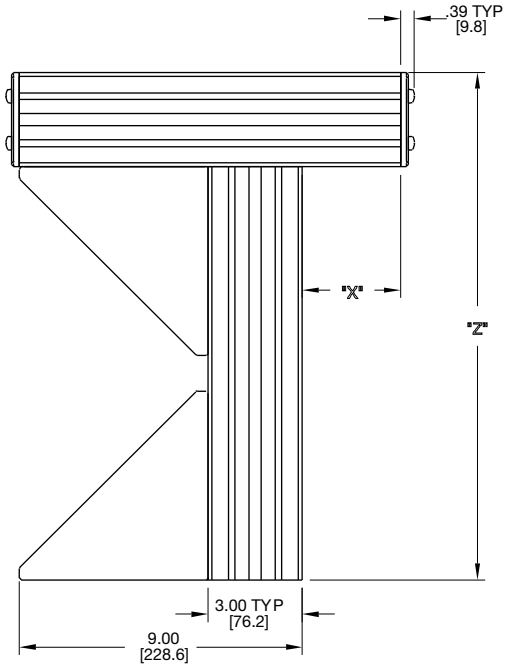


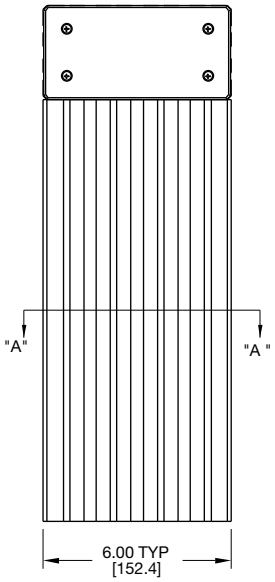


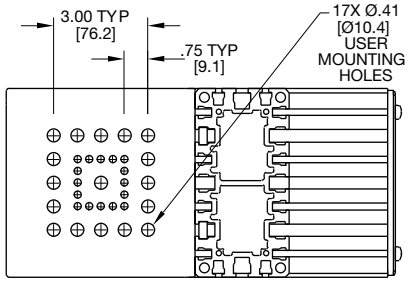
THRUSTER SLIDE MTG KIT

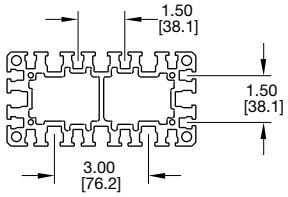


BASE SLIDE MTG KIT

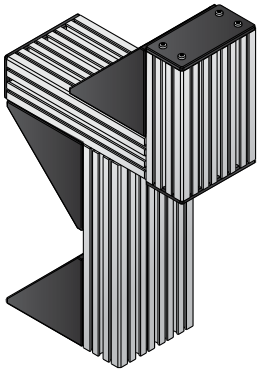








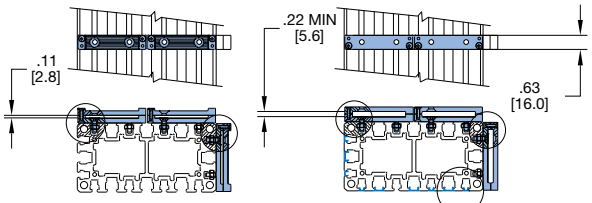
SECTION"A-A" - SEE PAGE 5.36 FOR DIMENSIONAL INFORMATION



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)



HOSE CLAMP KITS [3 KITS SHOWN EACH VIEW]

BASIC MODEL

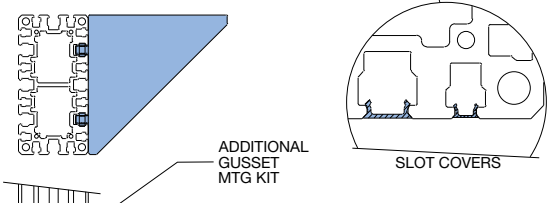
See drawing above. Increments of 0.01" DIM "X" Min: 0.00 in. Max: 20.00 in.

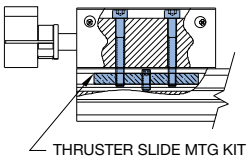
DMM-25-04 - X.XX - X.XX

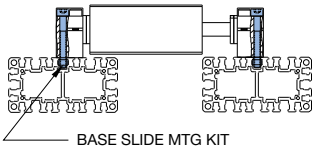
See drawing above. Increments of 0.01" DIM "Z" Min: 15.00 in. Max: 36.00 in.

ACCESSORIES	SIZE -20	SIZE -25	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-20	DMBM-25	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-20	DMTM-25	1
Additional Gusset Mounting Kit (Large)	DMGM-25	DMGM-25	Multiple
Additional Gusset Mounting Kit (Medium)	DMGM-16	DMGM-25	Multiple
Large Slot Covers (8ft. Lengths Only)	DMSC-25	DMSC-25	1 ea./ft.*
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	1.5 ea./ft.**
Large Hose Clamp Kit	DMHC-002	DMHC-002	Multiple

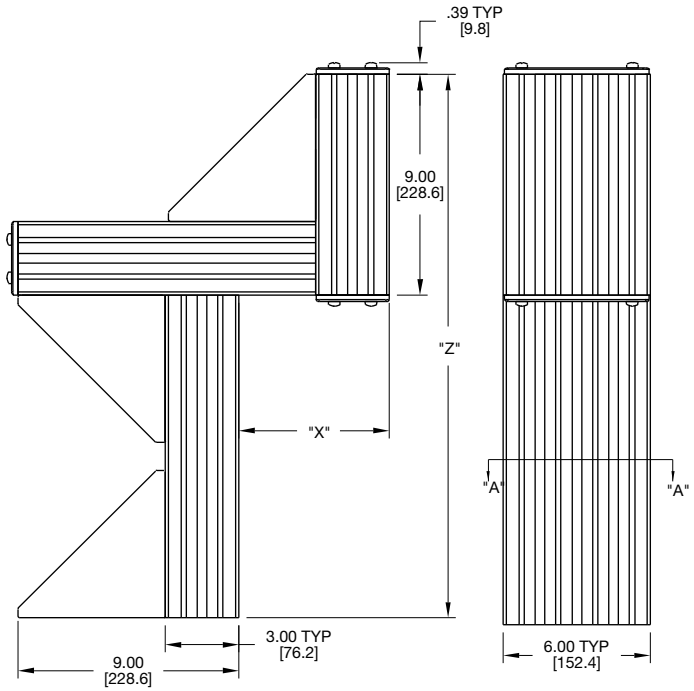
*One 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.
**One and one half 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.

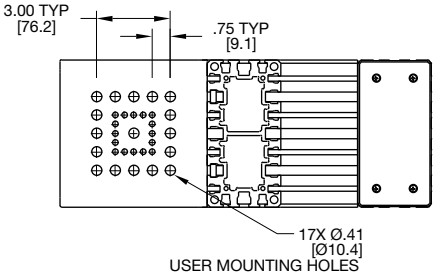




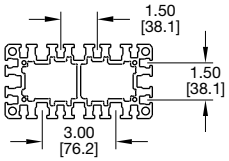


MOUNTING MODULE DMM-25-05

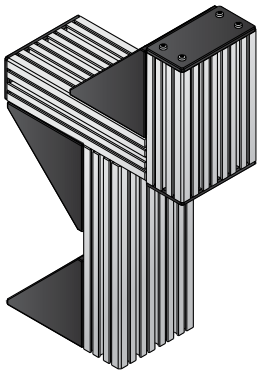




USER MOUNTING HOLES



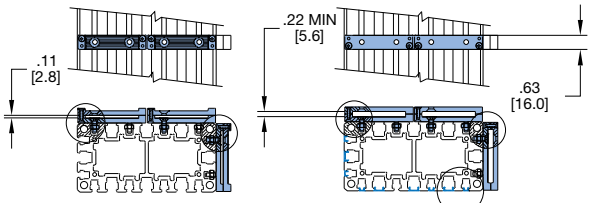
SECTION"A-A" - SEE PAGE 5.36 FOR DIMENSIONAL INFORMATION



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

How to Order: (Order Accessories separately from Basic Model)



HOSE CLAMP KITS [3 KITS SHOWN EACH VIEW]

BASIC MODEL

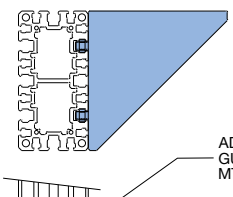
See drawing above. Increments of 0.01" DIM "X" Min: 3.00 in. Max: 20.00 in.

DMM-25-05 - X.XX - X.XX

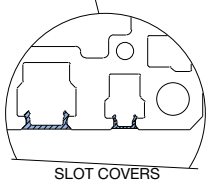
See drawing above. Increments of 0.01" DIM "Z" Min: 21.00 in. Max: 36.00 in.

ACCESSORIES	SIZE -20	SIZE -25	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-20	DMBM-25	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-20	DMTM-25	1
Additional Gusset Mounting Kit (Large)	DMGM-25	DMGM-25	Multiple
Additional Gusset Mounting Kit (Medium)	DMGM-16	DMGM-25	Multiple
Large Slot Covers (8ft. Lengths Only)	DMSC-25	DMSC-25	1 ea./ft.*
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	1.5 ea./ft.**
Large Hose Clamp Kit	DMHC-002	DMHC-002	Multiple

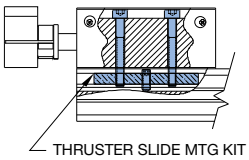
*One 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.
**One and one half 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.



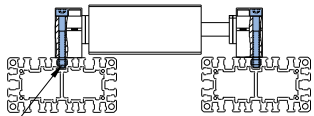
ADDITIONAL GUSSET MTG KIT



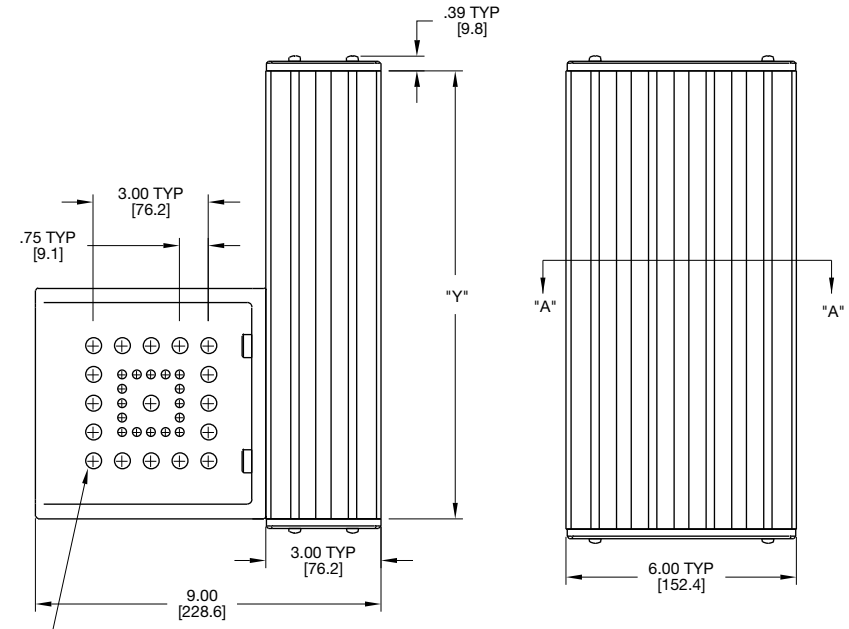
SLOT COVERS

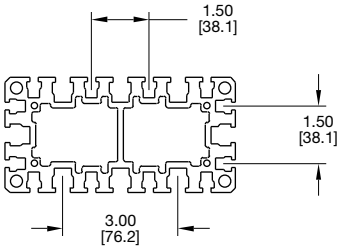


THRUSTER SLIDE MTG KIT

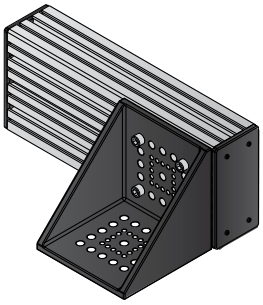


BASE SLIDE MTG KIT





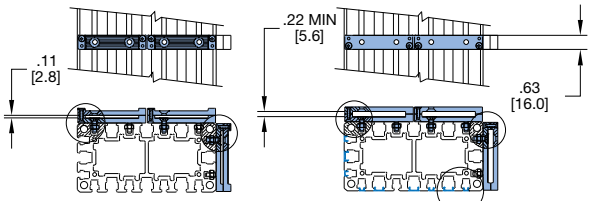
SECTION"A-A" - SEE PAGE 5.36 FOR DIMENSIONAL INFORMATION



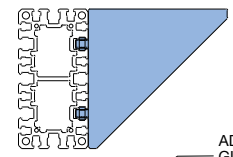
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

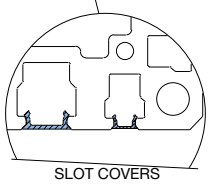
How to Order: (Order Accessories separately from Basic Model)



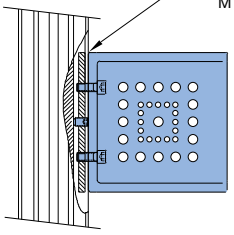
HOSE CLAMP KITS [3 KITS SHOWN EACH VIEW]

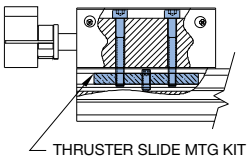


ADDITIONAL GUSSET MTG KIT

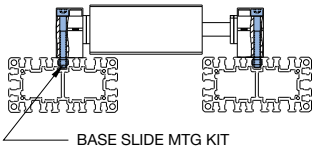


SLOT COVERS





THRUSTER SLIDE MTG KIT



BASE SLIDE MTG KIT

BASIC MODEL

DMM-25-06 - X.XX

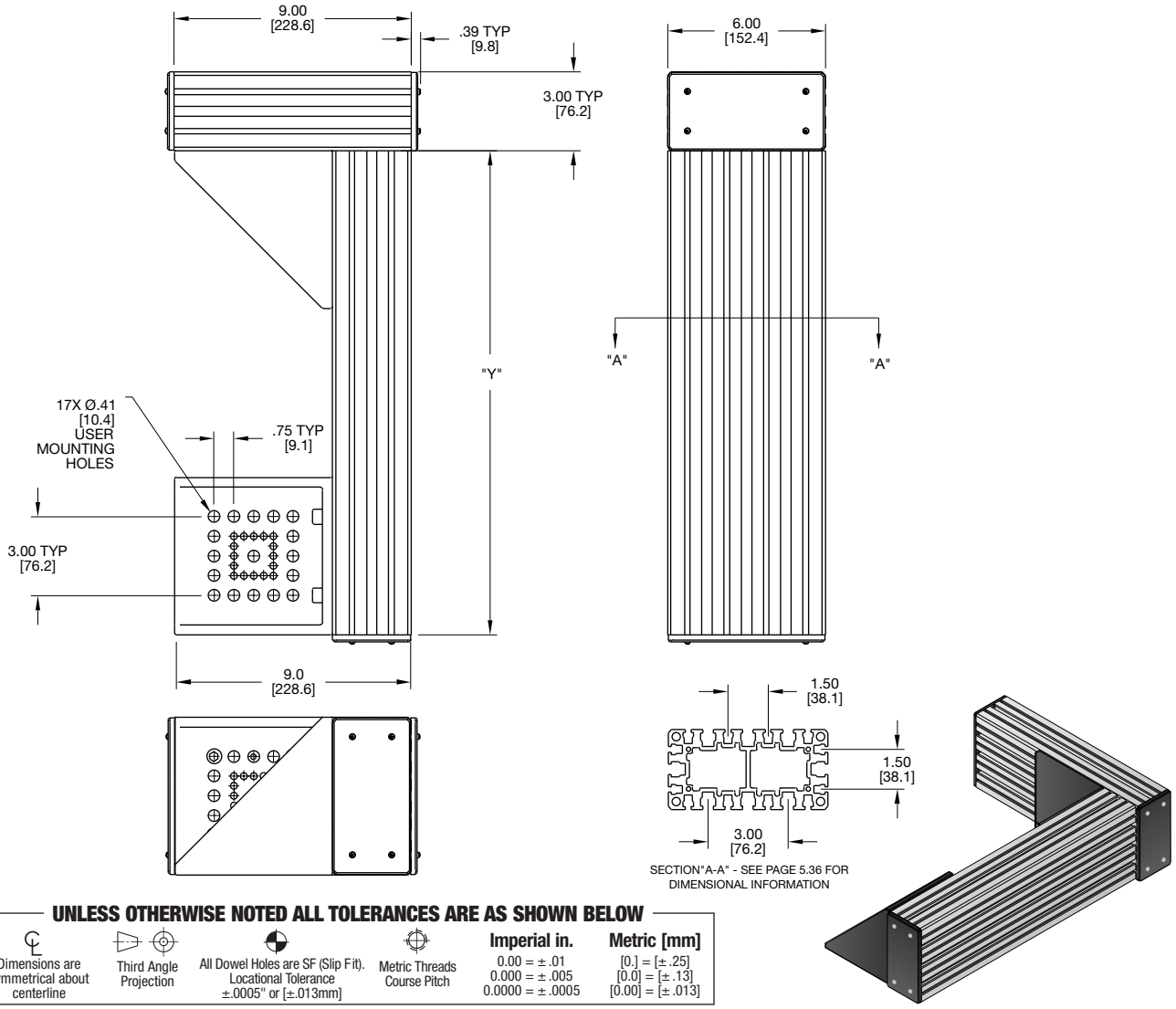
(See drawing above. Increments of 0.01") DIM "Y" Min: 7.50 in. Max: 36.00 in.

ACCESSORIES	SIZE -20	SIZE -25	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-20	DMBM-25	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-20	DMTM-25	1
Additional Gusset Mounting Kit (Large)	DMGM-25	DMGM-25	Multiple
Additional Gusset Mounting Kit (Medium)	DMGM-16	DMGM-25	Multiple
Large Slot Covers (8ft. Lengths Only)	DMSC-25	DMSC-25	1 ea./ft.*
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	1.5 ea./ft.**
Large Hose Clamp Kit	DMHC-002	DMHC-002	Multiple

*One 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.
**One and one half 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.

DIRECTCONNECT™

MOUNTING MODULE DMM-25-07



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

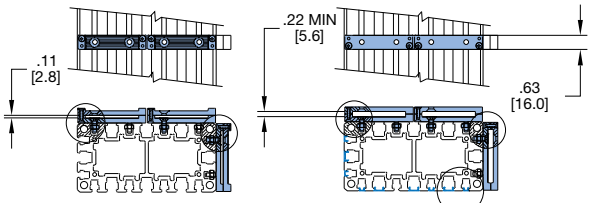
Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

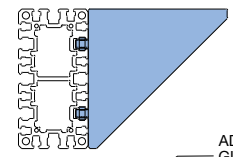
Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

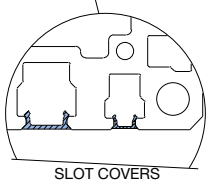
How to Order: (Order Accessories separately from Basic Model)



HOSE CLAMP KITS [3 KITS SHOWN EACH VIEW]



ADDITIONAL GUSSET MTG KIT



SLOT COVERS

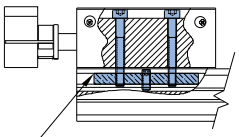
BASIC MODEL

DMM-25-07-X.XX

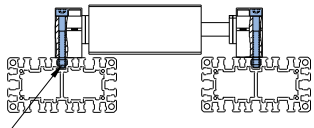
(See drawing above. Increments of 0.01") DIM "Y" Min: 12.00 in. Max: 36.00 in.

ACCESSORIES	SIZE -20	SIZE -25	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-20	DMBM-25	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-20	DMTM-25	1
Additional Gusset Mounting Kit (Large)	DMGM-25	DMGM-25	Multiple
Additional Gusset Mounting Kit (Medium)	DMGM-16	DMGM-25	Multiple
Large Slot Covers (8ft. Lengths Only)	DMSC-25	DMSC-25	1 ea./ft.*
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	1.5 ea./ft.**
Large Hose Clamp Kit	DMHC-002	DMHC-002	Multiple

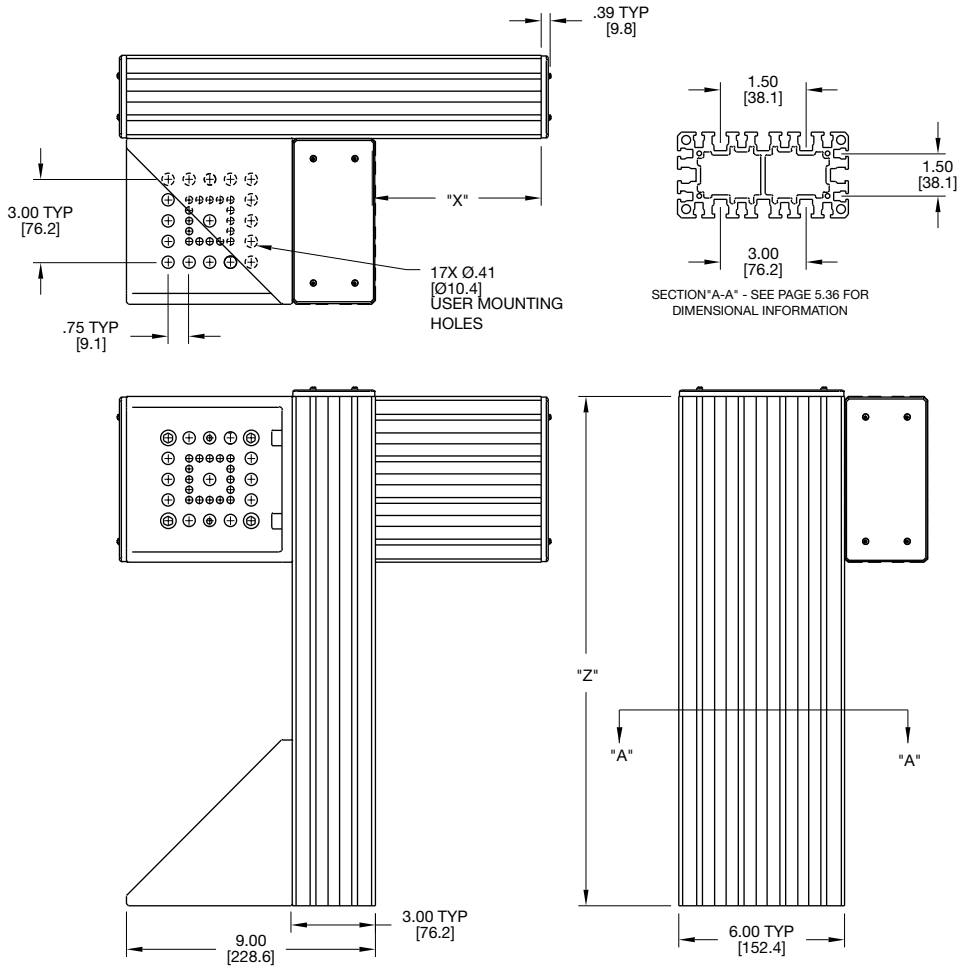
*One 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.
**One and one half 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.

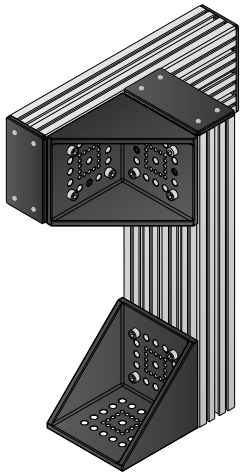


THRUSTER SLIDE MTG KIT



BASE SLIDE MTG KIT

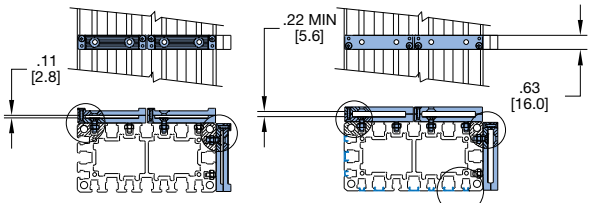




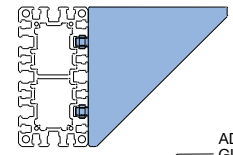
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

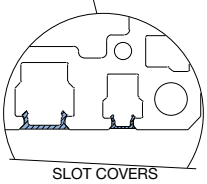
How to Order: (Order Accessories separately from Basic Model)



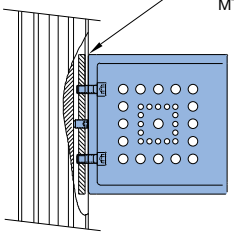
HOSE CLAMP KITS [3 KITS SHOWN EACH VIEW]

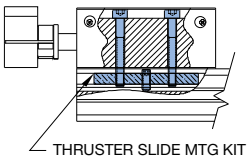


ADDITIONAL GUSSET MTG KIT

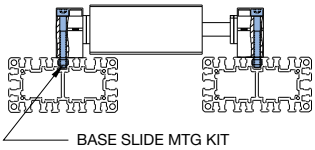


SLOT COVERS





THRUSTER SLIDE MTG KIT



BASE SLIDE MTG KIT

BASIC MODEL

DMM-25-08 - X.XX - X.XX

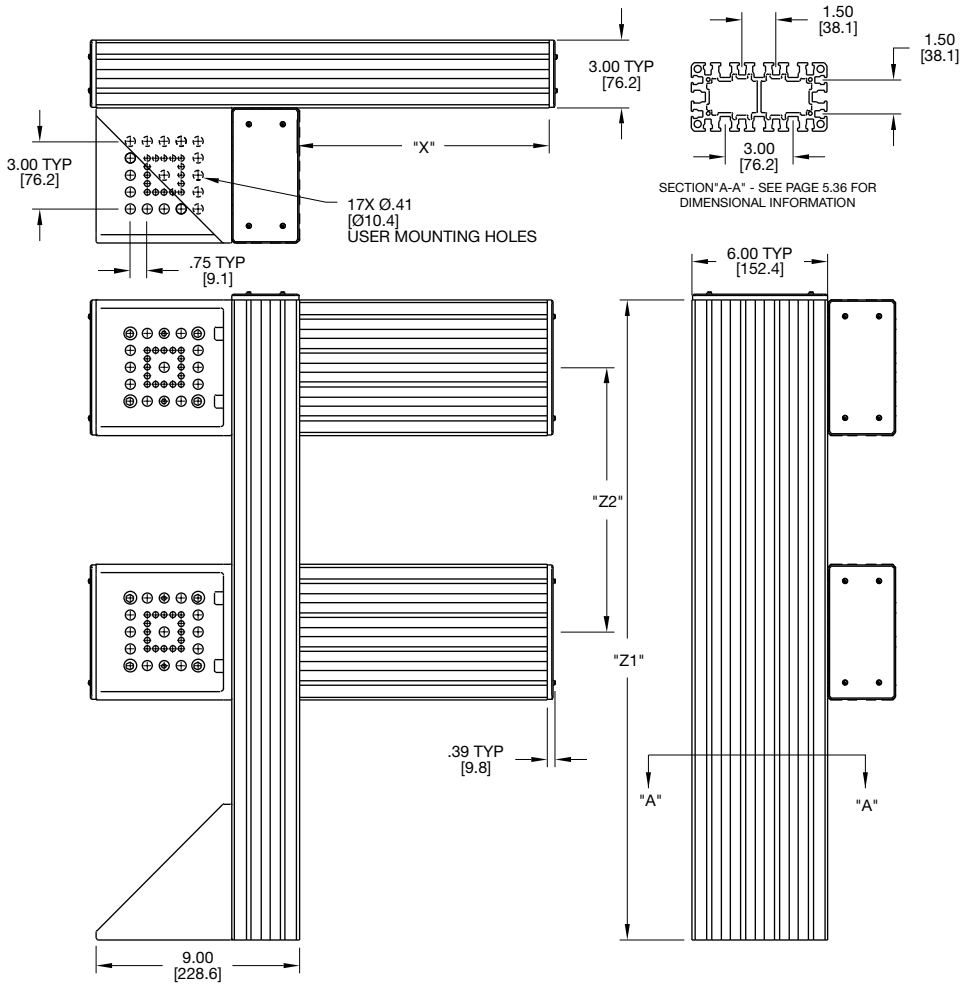
See drawing above. Increments of 0.01" DIM "X" Min: 0.00 in. Max: 20.00 in.

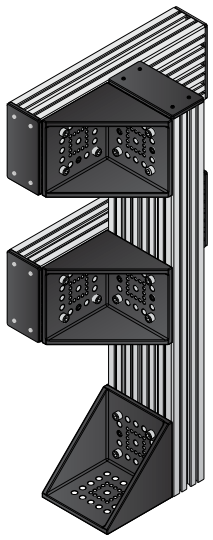
See drawing above. Increments of 0.01" DIM "Z" Min: 12.00 in. Max: 36.00 in.

ACCESSORIES	SIZE -20	SIZE -25	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-20	DMBM-25	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-20	DMTM-25	1
Additional Gusset Mounting Kit (Large)	DMGM-25	DMGM-25	Multiple
Additional Gusset Mounting Kit (Medium)	DMGM-16	DMGM-25	Multiple
Large Slot Covers (8ft. Lengths Only)	DMSC-25	DMSC-25	1 ea./ft.*
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	1.5 ea./ft.**
Large Hose Clamp Kit	DMHC-002	DMHC-002	Multiple

*One 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.
**One and one half 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.

MOUNTING MODULE DMM-25-09

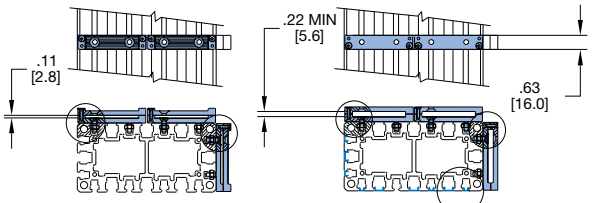




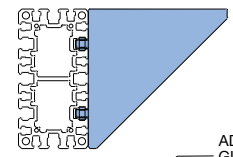
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

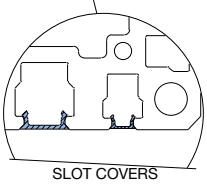
How to Order: (Order Accessories separately from Basic Model)



HOSE CLAMP KITS [3 KITS SHOWN EACH VIEW]



ADDITIONAL GUSSET MTG KIT



SLOT COVERS

BASIC MODEL

DMM-25-09 - X.XX - X.XX - X.XX

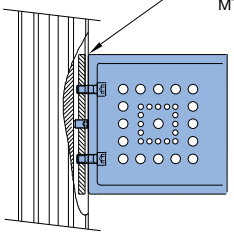
See drawing above. Increments of 0.01" DIM "X" Min: 0.00 in. Max: 24.00 in.

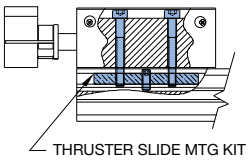
See drawing above. Increments of 0.01" DIM "Z1" Min: 18.00 in. Max: 49.00 in.

DIM "Z2" Min: 6.00 in. Max: 37.00 in.

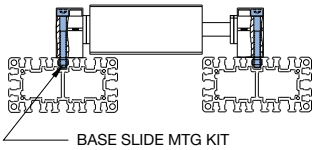
ACCESSORIES	SIZE -20	SIZE -25	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-20	DMBM-25	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-20	DMTM-25	1
Additional Gusset Mounting Kit (Large)	DMGM-25	DMGM-25	Multiple
Additional Gusset Mounting Kit (Medium)	DMGM-16	DMGM-25	Multiple
Large Slot Covers (8ft. Lengths Only)	DMSC-25	DMSC-25	1 ea./ft.*
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	1.5 ea./ft.**
Large Hose Clamp Kit	DMHC-002	DMHC-002	Multiple

*One 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.
**One and one half 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.

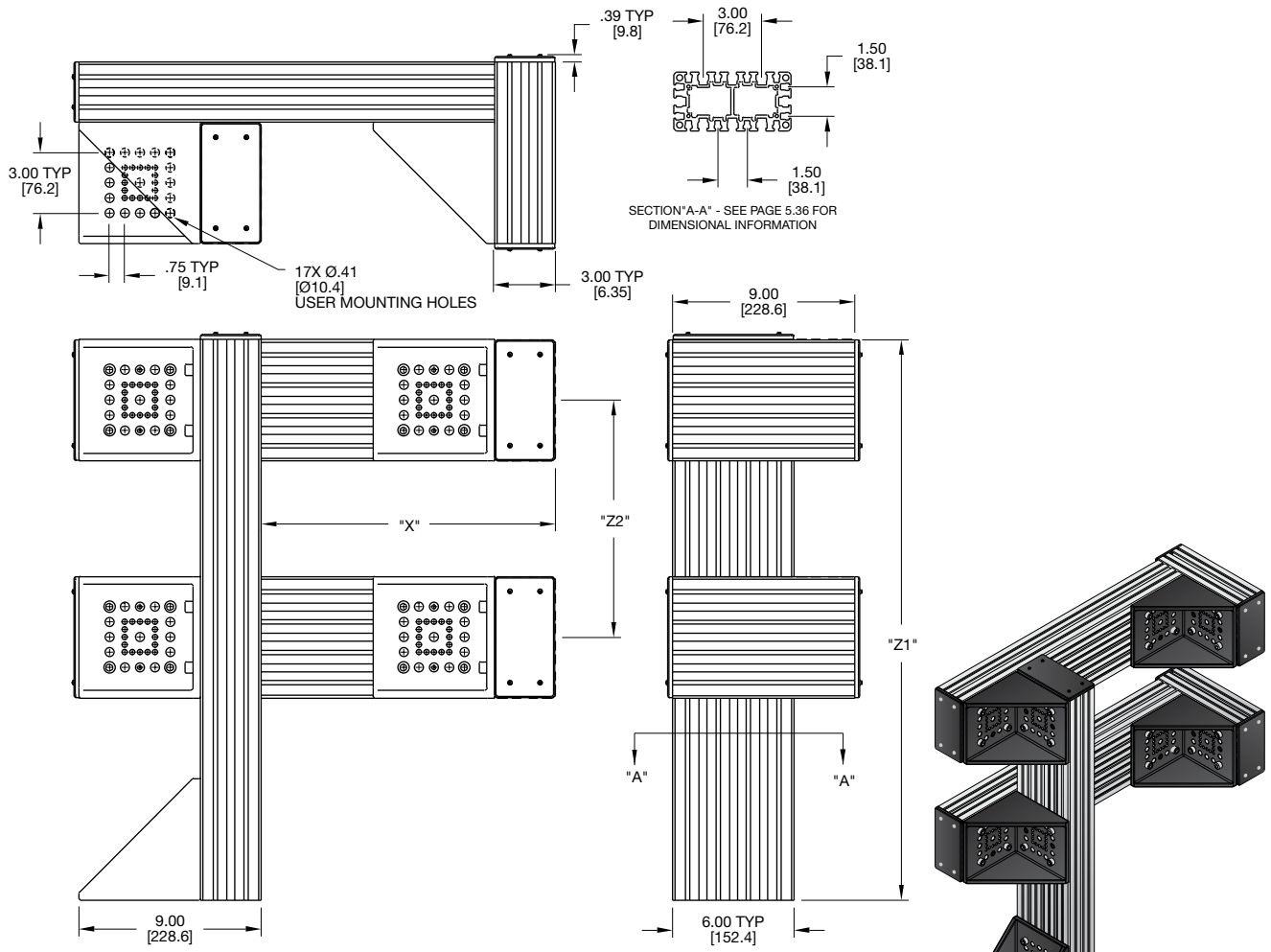




THRUSTER SLIDE MTG KIT



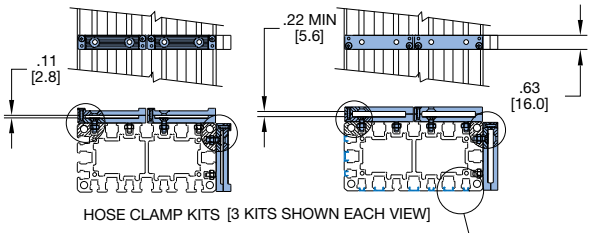
BASE SLIDE MTG KIT



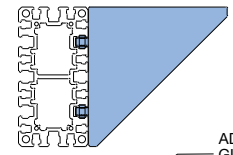
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

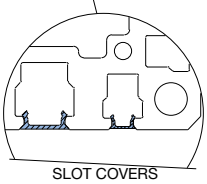
How to Order: (Order Accessories separately from Basic Model)



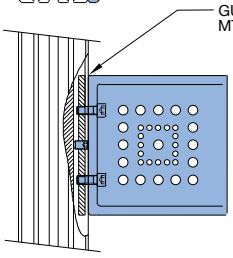
HOSE CLAMP KITS [3 KITS SHOWN EACH VIEW]

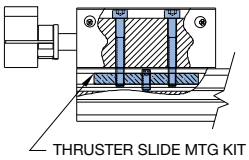


ADDITIONAL GUSSET MTG KIT

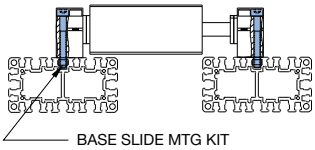


SLOT COVERS





THRUSTER SLIDE MTG KIT



BASE SLIDE MTG KIT

BASIC MODEL

DMM-25-10 - X.XX - X.XX - X.XX

See drawing above. Increments of 0.01" DIM "X" Min: 9.00 in. Max: 24.00 in.

See drawing above. Increments of 0.01" DIM "Z1" Min: 18.00 in. Max: 49.00 in.

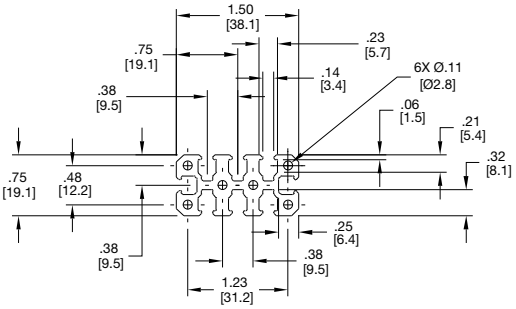
DIM "Z2" Min: 6.00 in. Max: 37.00 in.

ACCESSORIES	SIZE -20	SIZE -25	QTY/UNIT
DLB Base Slide Mounting Kit	DMBM-20	DMBM-25	1
DLT/DLK Thruster Slide Mounting Kit	DMTM-20	DMTM-25	1
Additional Gusset Mounting Kit (Large)	DMGM-25	DMGM-25	Multiple
Additional Gusset Mounting Kit (Medium)	DMGM-16	DMGM-25	Multiple
Large Slot Covers (8ft. Lengths Only)	DMSC-25	DMSC-25	1 ea./ft.*
Medium Slot Covers (8ft. Lengths Only)	DMSC-16	DMSC-16	1.5 ea./ft.**
Large Hose Clamp Kit	DMHC-002	DMHC-002	Multiple

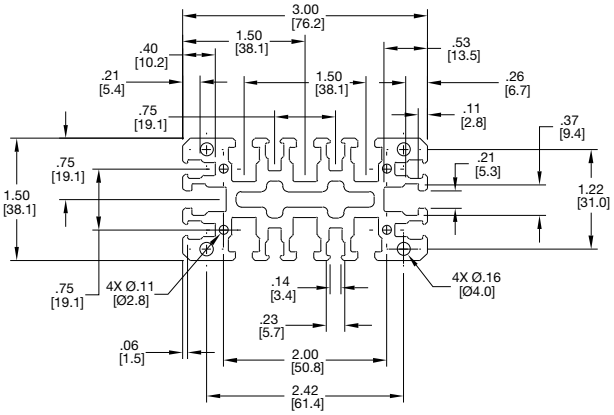
*One 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.
**One and one half 8ft. Length of Slot Cover needed for each foot of extrusion covera ge.

MOUNTING MODULE COMPONENTS

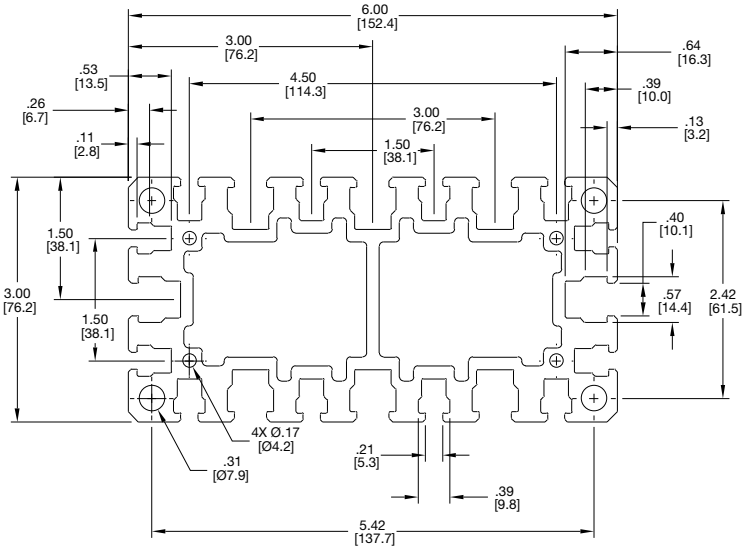
Specifications	DMEX-08
Material	6063-T6 Aluminum
Finish	Clear Anodize
Weight per/ft.	0.67 lbs.
Bar Length	90 in. ± 0.12"
Section Area	0.60 sq. in.
Max. Twist	0.25 in./ft.
Flatness	0.004 in. per inch of width
Straightness	0.013 in. per foot
Moment of Inertia X	0.0519 in⁴.
Moment of Inertia Y	0.2096 in⁴.



Specifications	DMEX-16
Material	6063-T6 Aluminum
Finish	Clear Anodize
Weight per/ft.	2.40 lbs.
Bar Length	90 in. ± 0.12"
Section Area	2.05 sq. in.
Max. Twist	0.25 in./ft.
Flatness	0.004 in. per inch of width
Straightness	0.013 in. per foot
Moment of Inertia X	0.8313 in⁴.
Moment of Inertia Y	3.278 in⁴.



Specifications	DMEX-25
Material	6063-T6 Aluminum
Finish	Clear Anodize
Weight per/ft.	7.34 lbs.
Bar Length	90 in. ± 0.12"
Section Area	06.25 sq. in.
Max. Twist	0.25 in./ft.
Flatness	0.004 in. per inch of width
Straightness	0.013 in. per foot
Moment of Inertia X	12.608 in⁴.
Moment of Inertia Y	52.614 in⁴.



How to Order: Custom Length Extrusion

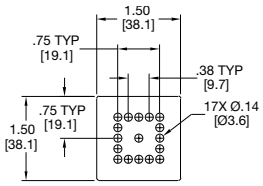
DMEX-08 - X.XX Min. = 2.00" Max. = 90.00"
Increments of 0.01" — LENGTH

DMEX-16 - X.XX Min. = 2.00" Max. = 90.00"
Increments of 0.01" — LENGTH

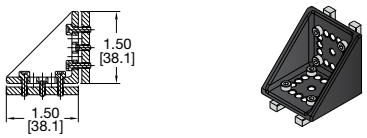
DMEX-25 - X.XX Min. = 2.00" Max. = 90.00"
Increments of 0.01" — LENGTH

COMPATIBLE ACCESSORIES	DMEX-08	DMEX-16	DMEX-25
Nut Plate	DMNP-001	DMNP-001, -002	DMNP-002, -003
Gusset	DMEG-08	DMEG-08, -16	DMEG-16, -25
End Cap Plate	DMEC-08	DMEC-16	DMEC-25
Gusset Kit	DMGM-08, -16	DMGM-08, -16	DMGM-16, -25
Slot Covers (8ft. Lengths Only)	DMSC-08	DMSC-08, -16	DMSC-16, -25
Hose Clamp Kit	DMHC-001	DMHC-001, -002	DMHC-002
Lock Nuts	HRDW-087	HRDW-087, -088	HRDW-088, -089

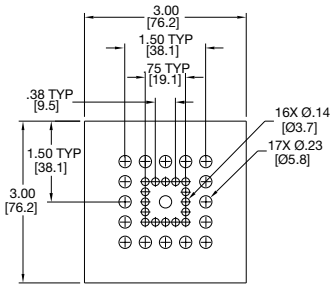
Specifications **DMEG-08**
Material..... 356-T6 Aluminum
Finish..... Powder Coat
Weight (Gusset only) ..... 0.07 lbs
Thickness..... 0.14 in.



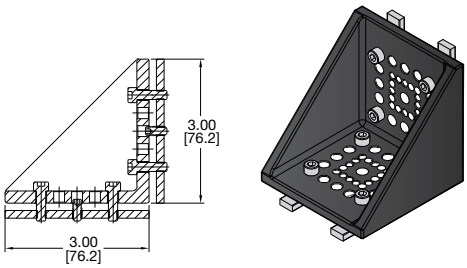
DMGM-08



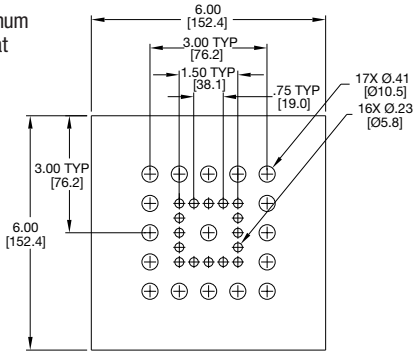
Specifications **DMEG-16**
Material..... 356-T6 Aluminum
Finish..... Powder Coat
Weight (Gusset only) ..... 0.56 lbs
Thickness..... 0.25 in.



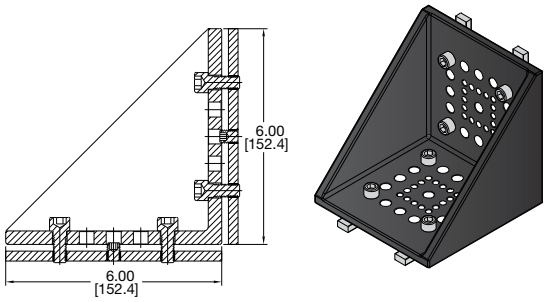
DMGM-16



Specifications **DMEG-25**
Material..... 356-T6 Aluminum
Finish..... Powder Coat
Weight (Gusset only) ..... 3.51 lbs
Thickness..... 0.38 in.



DMGM-25



How to Order: Gusset Kits (Pre-Assembled Units with Mounting Hardware)

DMGM-08 Sized for **DMEX-08**
Will attach to **DMEX-16**

DMGM-16 Sized for **DMEX-16**
Will attach to **DMEX-08, DMEX-25**

DMGM-25 Sized for **DMEX-25**
Will attach to **DMEX-16**

- **Units come pre-assembled. Ready to Install**
- **Allen Wrench included with each unit**
- **All Nut Plates and Hardware made of Stainless Steel**
- **Gussets without mounting hardware available separately. See below**

How to Order: Gusset (Gusset Only. No Hardware Included)

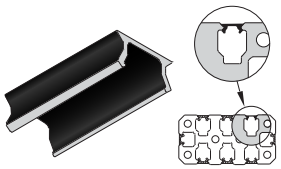
DMEG-08 Sized for **DMEX-08**
Will attach to **DMEX-16**

DMEG-16 Sized for **DMEX-16**
Will attach to **DMEX-08, DMEX-25**

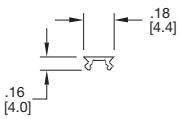
DMEG-25 Sized for **DMEX-25**
Will attach to **DMEX-16**

COMPATIBLE ACCESSORIES	DMEG-08	DMEG-16	DMEG-25
Nut Plate	DMNP-001	DMNP-001, -002	DMNP-002, -003
Screws	HRDW-109	HRDW-113	HRDW-114
Nuts	HRDW-087	HRDW-087, -088	HRDW-088, -089

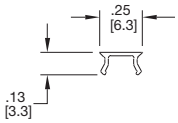
MOUNTING MODULE COMPONENTS



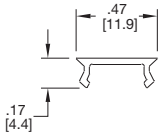
DMSC-08



DMSC-16



DMSC-25



How to Order: Slot Covers

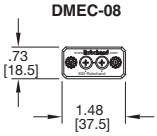
DMSC-08 1 piece per ft. for **DMEX-08, DMEX-16**

DMSC-16 1 piece per ft. for **DMEX-16**
1.5 piece per ft. for **DMEX-25**

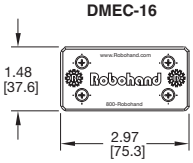
DMSC-25 1 piece per ft. for **DMEX-25**

- Works as a great dust cover
- Covers wires and tubes in slots on larger sizes
- Easy to install. No hammer needed
- Cuts easily with scissors
- Stock length = 8 ft.

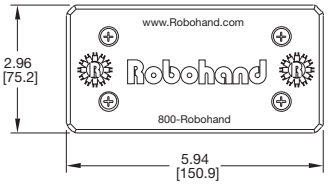
DMEC-08



DMEC-16



DMEC-25



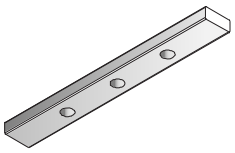
How to Order: End Caps

DMEC-08 Sized for **DMEX-08** Extrusion

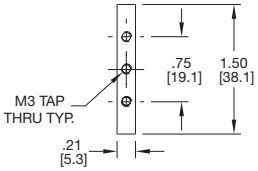
DMEC-16 Sized for **DMEX-16** Extrusion

DMEC-25 Sized for **DMEX-25** Extrusion

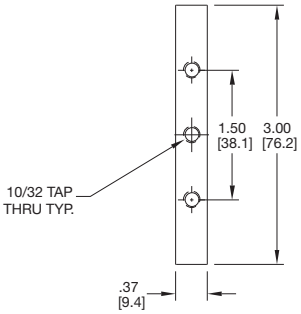
- Gives your assembly the finished touch
- Easily attaches to extrusion. No tapping needed
- Self tapping fasteners included
- Made from black ABS plastic



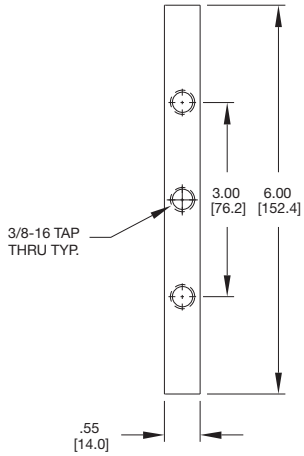
DMNP-08



DMNP-16



DMNP-25



How to Order: Nut Plates

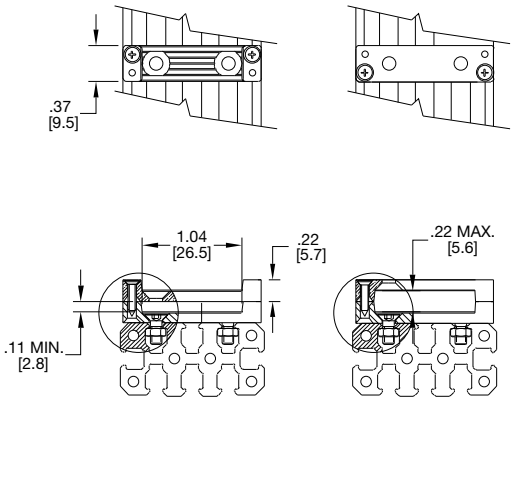
DMNP-08 Sized for **DMEX-08**
Will attach to **DMEX-16**

DMNP-16 Sized for **DMEX-16**
Will attach to **DMEX-08, DMEX-25**

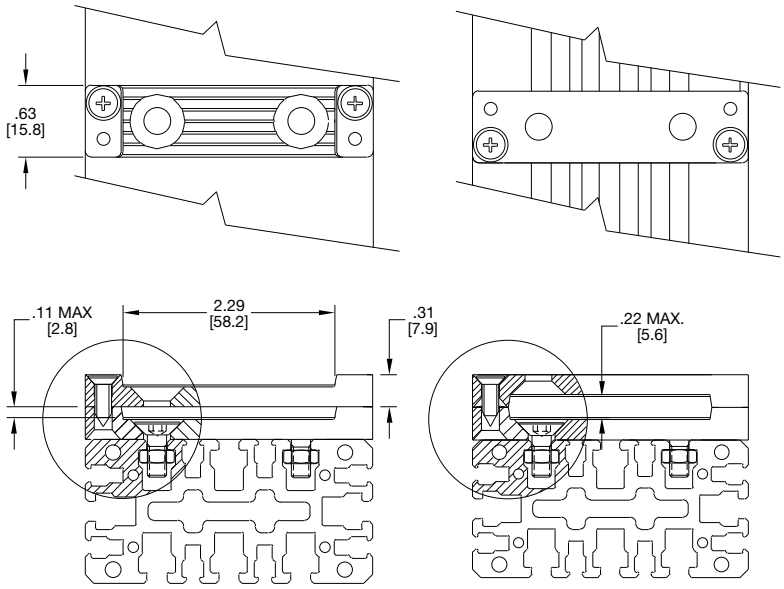
DMNP-25 Sized for **DMEX-25**
Will attach to **DMEX-16**

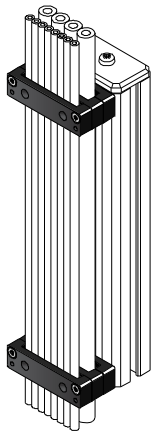
- Use as extra support for Gussets
- Nut Plate has standard DIRECTCONNECT mount spacing
- Stainless Steel with locking feature

DMHC-001

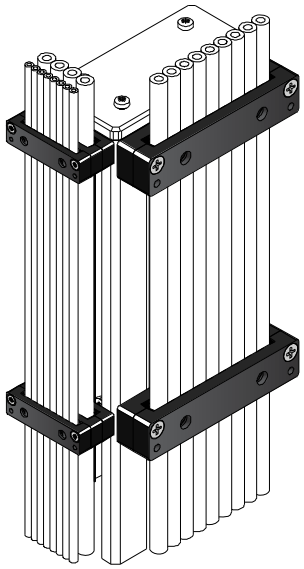


DMHC-002

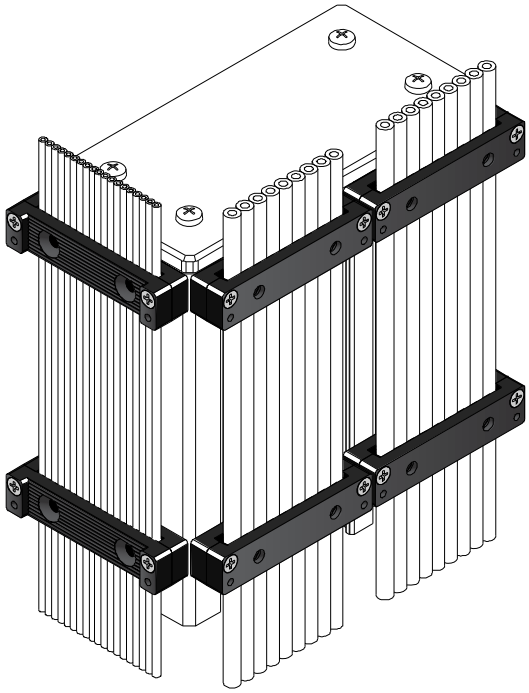




The above DMEX-08 example shows (3) DMHC-001 Kits holding (4) 1/4 tubes & (8) 1/8 tubes



The above DMEX-16 example shows (3) DMHC-001 & (2) DMHC-002 Kits holding (13) 1/4 tubes & (8) 1/8 tubes



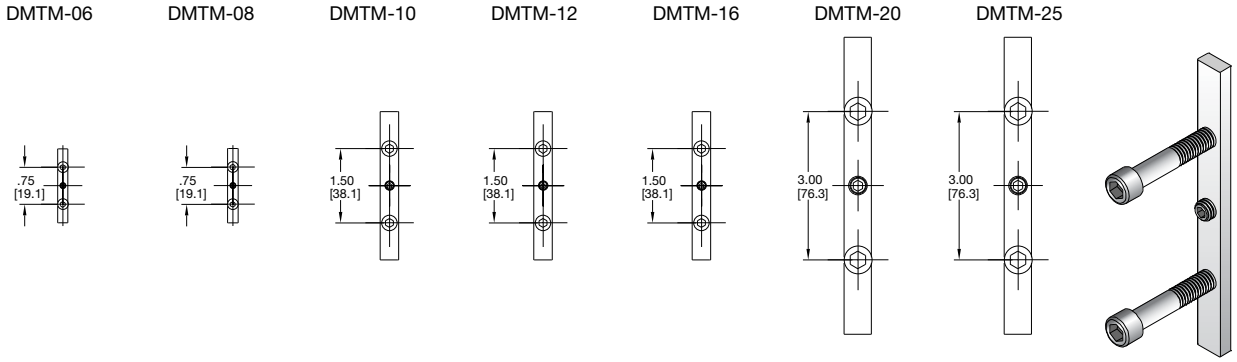
The above DMEX-25 example shows (6) DMHC-002 Kits holding (18) 1/4 tubes & (19) 1/8 tubes

How to Order: Hose Clamp Kits

DMHC-001 Sized for **DMEX-08** & **DMEX-16**

DMHC-002 Sized for **DMEX-16** & **DMEX-25**

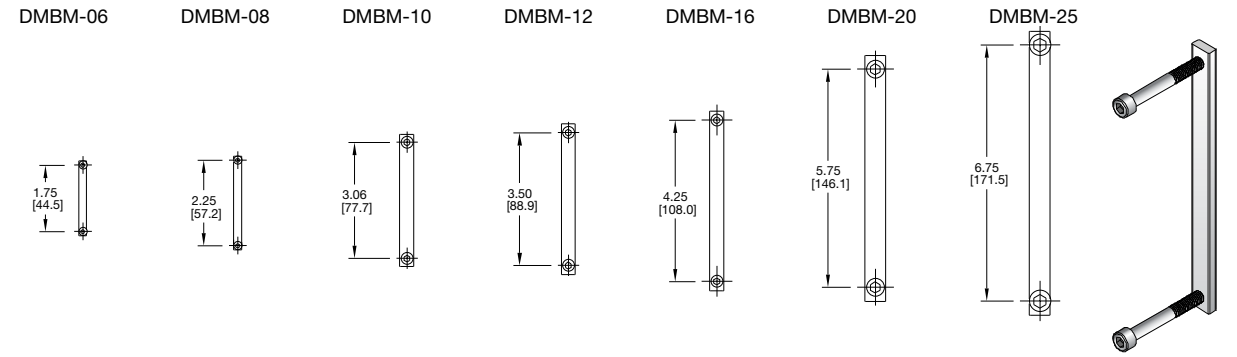
- **Kits contain 2 Clamp halves, 2 FHSC Screws, 2 Locknuts, and 2 Self Tapping Screws**
- **Keeps tubing/cable neat and tight**
- **Stackable design allows for multiple tube/cable diameters**
- **Allen Wrench included in each kit**
- **Clamp Housing made of high strength glass filled polycarbonate**
- **All hardware made of Stainless Steel**



How to Order: DMM Thruster Slide Mounting Kit

DMTM-06	Sized for **DLT, DLK-06**
DMTM-08	Sized for **DLT, DLK-08**
DMTM-10	Sized for **DLT, DLK-10**
DMTM-12	Sized for **DLT, DLK-12**
DMTM-16	Sized for **DLT, DLK-16**
DMTM-20	Sized for **DLT, DLK-20**
DMTM-25	Sized for **DLT, DLK-25**

- **Comes pre-assembled. Ready for installation**
- **DLT Kits include 2 Nut Plates, 4 Screws (specific to the size unit you are mounting), and 2 Set Screws**
- **Allen Wrench included in each kit**
- **Locking feature incorporated into Nut Plate**
- **All Nut Plates and Hardware made of Stainless Steel**



How to Order: DMM Base Slide Mounting Kit

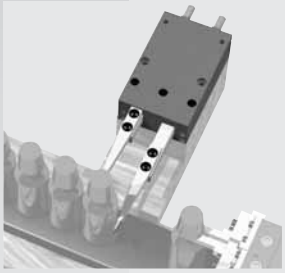
DMBM-06	Sized for **DLB-06**
DMBM-08	Sized for **DLB-08**
DMBM-10	Sized for **DLB-10**
DMBM-12	Sized for **DLB-12**
DMBM-16	Sized for **DLB-16**
DMBM-20	Sized for **DLB-20**
DMBM-25	Sized for **DLB-25**

- **Comes pre-assembled. Ready for installation**
- **DLB Kits include 2 Nut Plates and 4 Screws (specific to the size unit you are mounting)**
- **Allen Wrench included in each kit**
- **Locking feature incorporated into Nut Plate**
- **All Nut Plates and Hardware made of Stainless Steel**

Feed Escapements

RFE Series
Feed Escapement

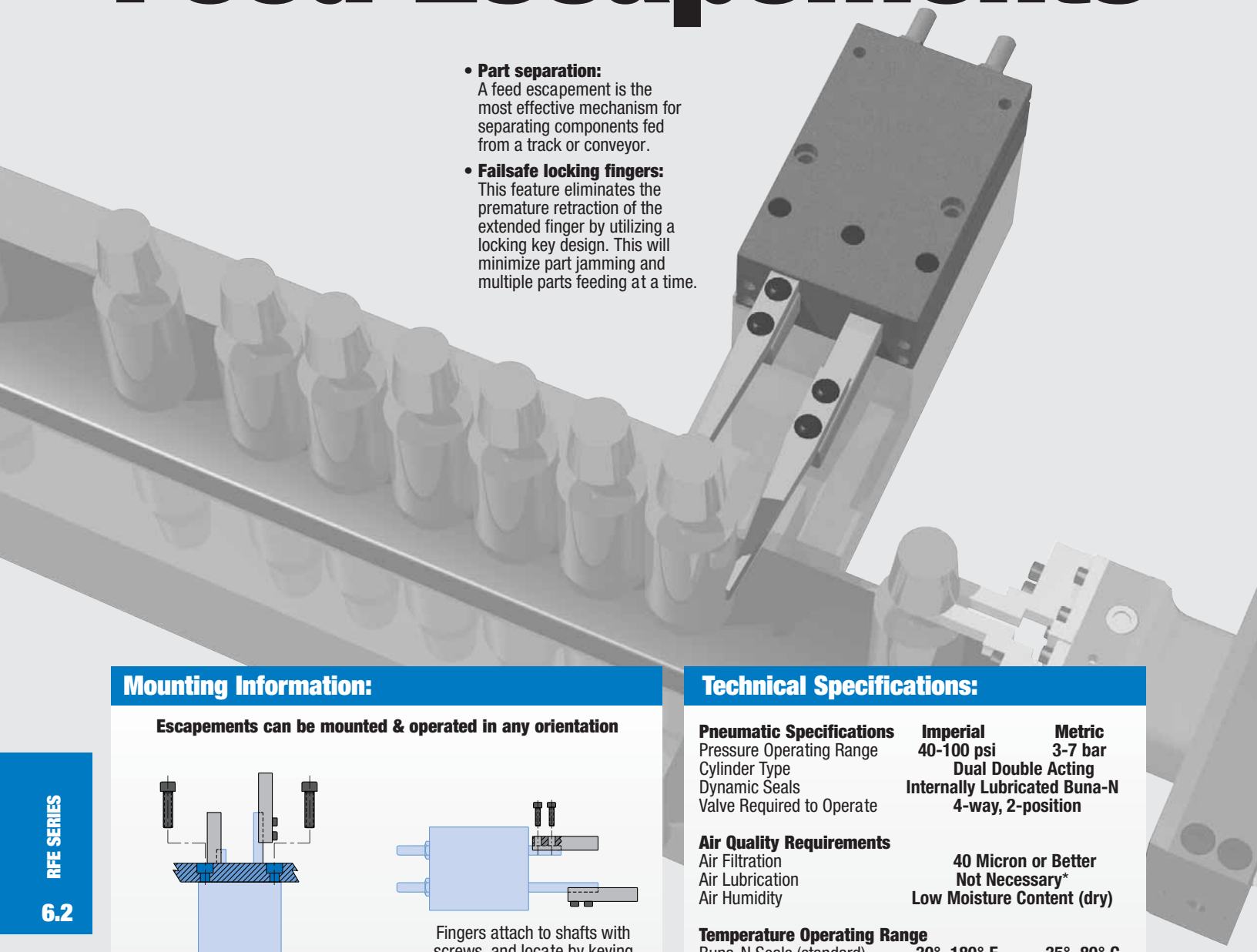
- Finger locking mechanism ensures that only one finger can be retracted at one time for proper part feeding
- Square shaft prevents shaft from rotating
- Unit can be mounted using the top, bottom, or face surface



See Page 6.2

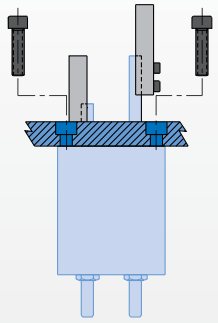
Feed Escapements

- **Part separation:** A feed escapement is the most effective mechanism for separating components fed from a track or conveyor.
- **Failsafe locking fingers:** This feature eliminates the premature retraction of the extended finger by utilizing a locking key design. This will minimize part jamming and multiple parts feeding at a time.



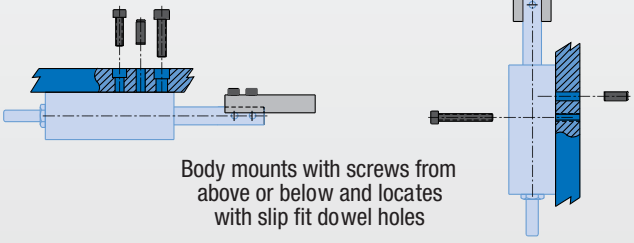
Mounting Information:

Escapements can be mounted & operated in any orientation



Body face mounts with screws

Fingers attach to shafts with screws and locate by keying



Body mounts with screws from above or below and locates with slip fit dowel holes

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**3-7 bar**
Cylinder Type	**Dual Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**
Viton® Seals (optional)	**-20°~300° F**	**-30°~150° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features

Hard Coat Anodize
7075-T6 aircraft quality aluminum body hard-coat anodize 60 RC with Teflon® impregnation

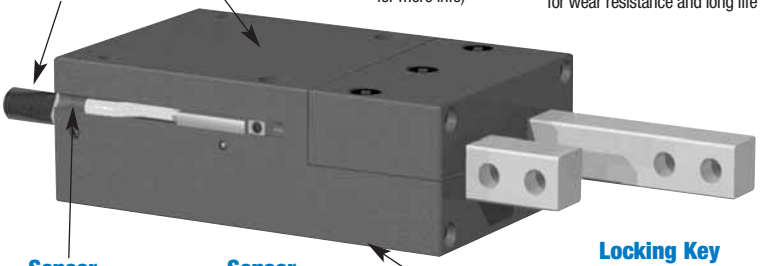
Sealed Design
Sealed design repels contaminants

Self-Lubricating Seals
Self lubricating dynamic seals (Buna-N only)

Sensors and Flow Controls
(sold separately-see "How to Order" Section for more info)

Quality Components
Dynamic components are precision ground and hardened for wear resistance and long life

Adjustable Retract Stops



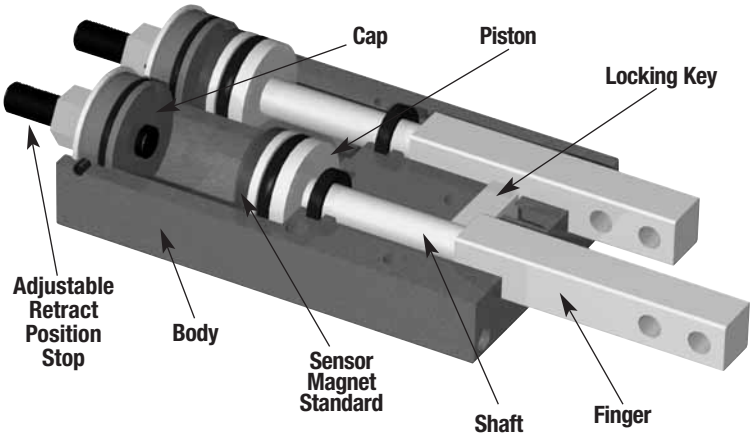
Sensor Mounting Slots
Built-in sensor mounting slots

Sensor Magnet
Built-in sensor magnet for use with Hall Effect sensors

Locking Key
Ensures part separation and eliminates jams

Dowel Holes
Slip fit dowel holes in body for precision applications

Operating Principle



Style-RFE Feed Escapement
Size -11M

Style:	**RFE-11M**	
Stroke:	0.625"	15.9mm
Thrust Force:	25 lb	111 N
Weight:	.33 lb	.15 Kg

See Page 6.4

Style-RFE Feed Escapement
Size-12M

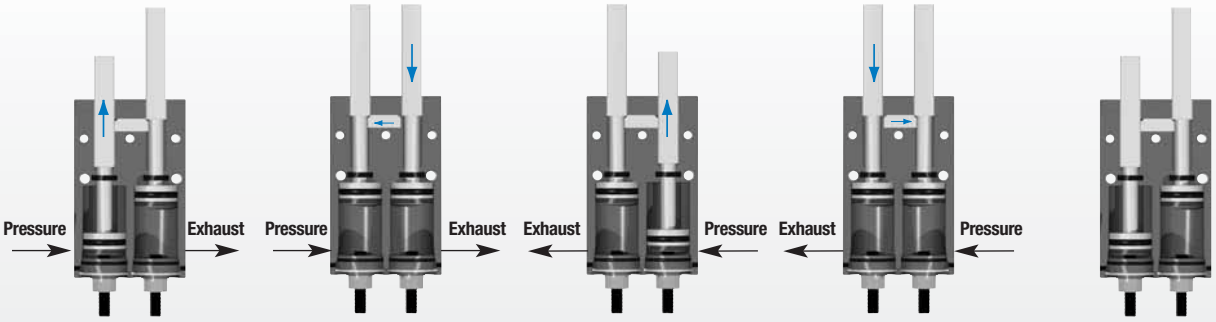
Style:	**RFE-12M**	
Stroke:	1.00"	25.4mm
Thrust Force:	50 lb	222 N
Weight:	.85 lb	.39 Kg

See Page 6.5

Style-RFE Feed Escapement
Size-13M

Style:	**RFE-13M**	
Stroke:	1.25"	31.8mm
Thrust Force:	90 lb	400 N
Weight:	1.84 lb	.83 Kg

See Page 6.6



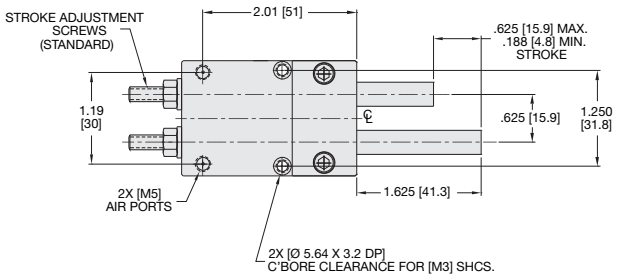
- Dual double acting pistons slide in opposite directions within the body through the use of internal porting.
- When pressure is applied, one piston extends and passes a port in it's cylinder wall which is linked to the retract side of the other piston's cylinder.
- The second piston then begins to retract and pushes the locking key aside into the cavity on the side of the first finger.
- Locking Key ensures only 1 finger can be retracted at a time.
- Finger must be allowed to fully extend for proper operation.

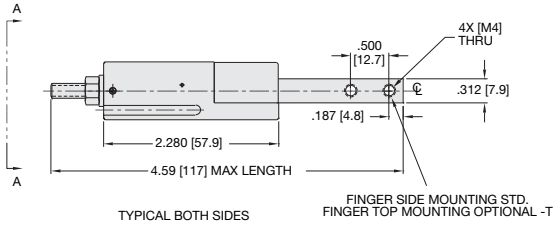
Designed and manufactured in the USA

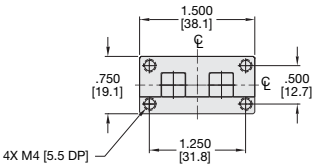
FEED ESCAPEMENTS RFE-11M
NON-ROTATING FINGER SERIES

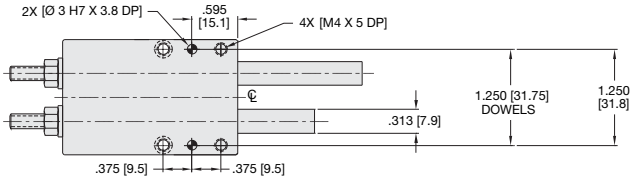
Robohand

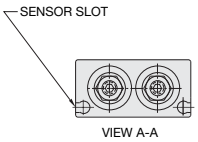
Specifications	RFE-11M	
Thrust Force @ Maximum PSI	25 lbs.	111 N
Stroke	0.625 in.	15.88 mm
Stroke Adjustability	0.44 in.	11 mm
Weight	0.33 lbs.	0.15 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	0.563 in.	14.30 mm
Rod Ø	0.250 in.	6.35 mm
Displacement	0.156 in^3.	2.6 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation Time	0.40 sec.	0.40 sec.
Parts Escaped per Minute	150	150
Valve Required to Actuate	4-way, 2-position	







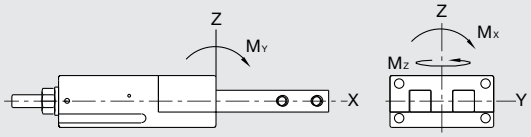




UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information



Loading Capacity	Static	Dynamic
Maximum Moment **Mx**	50 in.-lbs. [6 Nm]	5.0 in.-lbs. [0.57 Nm]
Maximum Moment **My**	50 in.-lbs. [6 Nm]	5.0 in.-lbs. [0.57 Nm]
Maximum Moment **Mz**	50 in.-lbs. [6 Nm]	5.0 in.-lbs. [0.57 Nm]

Thrust Force of Cylinders

Thrust Force	Extend	Retract
Thrust Force @ 100 PSI	25 lbs. [111 N]	20 lbs. [88 N]
Thrust Force @ 80 PSI	25 lbs. [88 N]	16 lbs. [70 N]
Thrust Force @ 60 PSI	15 lbs. [66 N]	12 lbs. [53 N]
Thrust Force @ 40 PSI	10 lbs. [441 N]	8 lbs. [35 N]
Thrust Force @ 20 PSI	5 lbs. [22 N]	4 lbs. [17 N]

How to Order: (Order Accessories separately from Basic Model)

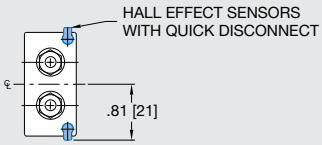
BASIC MODEL — VITON® SEALS

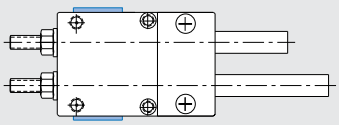
RFE-11M - T - V

TOP FINGER MOUNTING

SENSOR ACCESSORIES	Order #	QTY/UNIT
NPN Hall Effect Sensor with Quick Disconnect*	OHSN-017	1 or 2
PNP Hall Effect Sensor with Quick Disconnect*	OHSP-017	1 or 2
Quick Disconnect 2M Cable Length*	CABL-010	1 or 2
Quick Disconnect 5M Cable Length*	CABL-013	1 or 2
PNEUMATIC ACCESSORIES		
M5 Adjustable Flow Control	VLVF-008	1 or 2
Standard Seal Repair Kit	SLKT-110	1
Viton® Seal Repair Kit	SLKT-110V	1

*Sensor and cable sold separately.



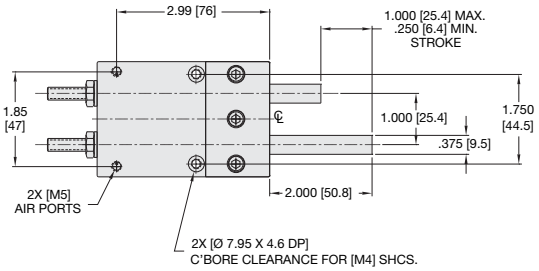


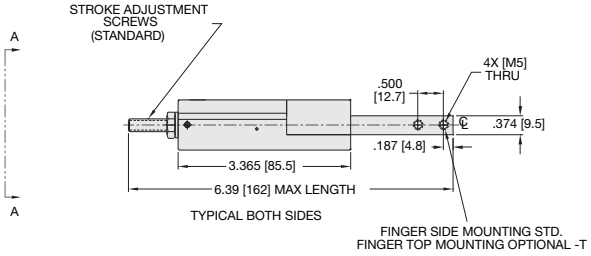
RFE SERIES

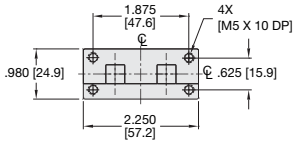
6.4

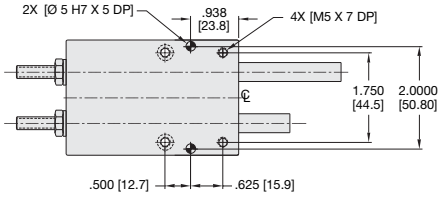
FEED ESCAPEMENTS RFE-12M
NON-ROTATING FINGER SERIES

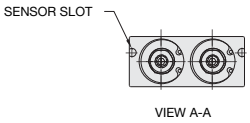
Specifications	RFE-12M	
Thrust Force @ Maximum PSI	50 lbs.	222 N
Stroke	1.000 in.	25.40 mm
Stroke Adjustability	0.75 in.	19 mm
Weight	0.85 lbs.	0.39 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	0.787 in.	20 mm
Rod Ø	0.313 in.	7.95 mm
Displacement	0.487 in^3.	8.0 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation Time	0.60 sec.	0.60 sec.
Parts Escaped per Minute	100	100
Valve required to actuate	4-way, 2-position	







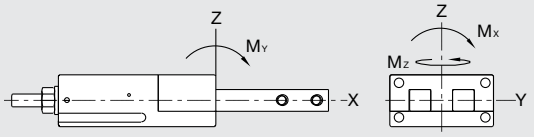




UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information



Loading Capacity	Static	Dynamic
Maximum Moment **Mx**	150 in.-lbs. [17 Nm]	15.0 in.-lbs. [1.70 Nm]
Maximum Moment **My**	150 in.-lbs. [17 Nm]	15.0 in.-lbs. [1.70 Nm]
Maximum Moment **Mz**	150 in.-lbs. [17 Nm]	15.0 in.-lbs. [1.70 Nm]

Thrust Force of Cylinders

Thrust Force	Extend	Retract
Thrust Force @ 100 PSI	50 lbs. [216 N]	40 lbs. [182 N]
Thrust Force @ 80 PSI	40 lbs. [173 N]	32 lbs. [146 N]
Thrust Force @ 60 PSI	30 lbs. [130 N]	25 lbs. [109 N]
Thrust Force @ 40 PSI	20 lbs. [86 N]	16 lbs. [73 N]
Thrust Force @ 20 PSI	10 lbs. [43 N]	8 lbs. [36 N]

How to Order: (Order Accessories separately from Basic Model)

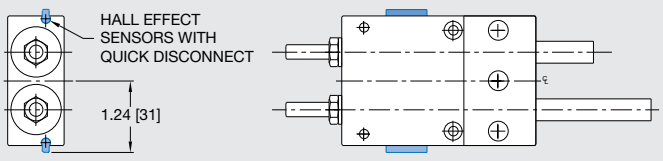
BASIC MODEL — VITON® SEALS

RFE-12M - T - V

TOP FINGER MOUNTING

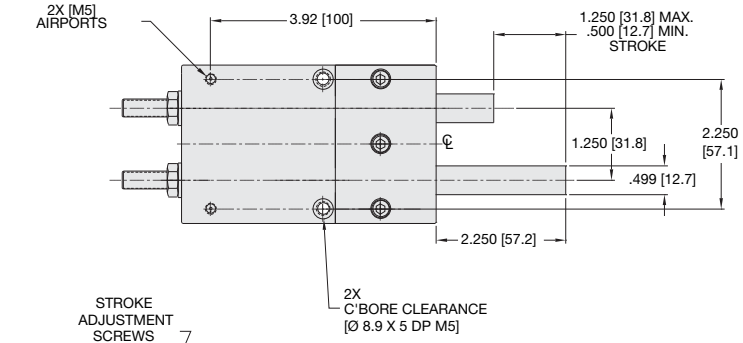
SENSOR ACCESSORIES	Order #	QTY/UNIT
NPN Hall Effect Sensor with Quick Disconnect*	**OHSN-017**	**1 or 2**
PNP Hall Effect Sensor with Quick Disconnect*	**OHSP-017**	**1 or 2**
Quick Disconnect 2M Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5M Cable Length*	**CABL-013**	**1 or 2**
PNEUMATIC ACCESSORIES		
M5 Adjustable Flow Control	**VLVF-008**	**1 or 2**
Standard Seal Repair Kit	**SLKT-111**	**1**
Viton® Seal Repair Kit	**SLKT-111V**	**1**

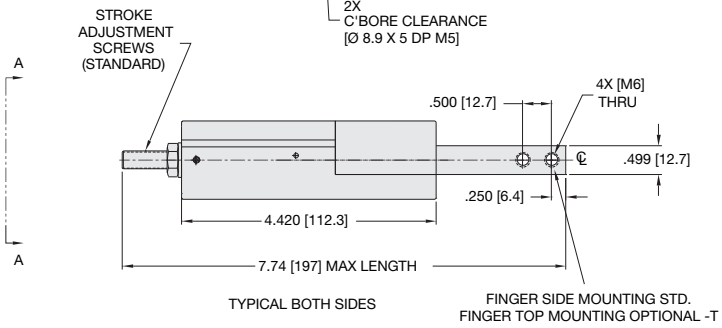
*Sensor and cable sold separately.

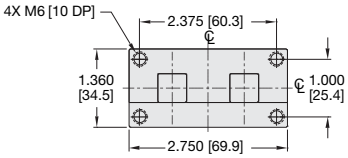


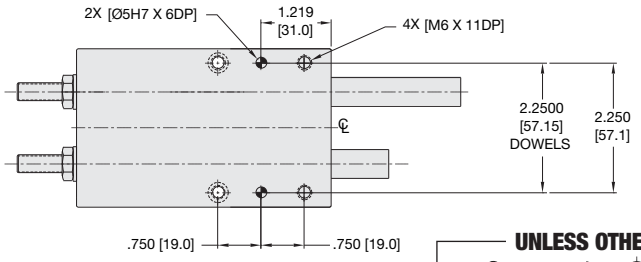
FEED ESCAPEMENTS RFE-13M
NON-ROTATING FINGER SERIES

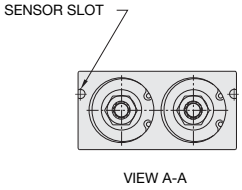
Robohand











Specifications	RFE-13M	
Thrust Force @ Maximum PSI	90 lbs.	400 N
Stroke	1.250 in.	31.75 mm
Stroke Adjustability	0.75 in.	19 mm
Weight	1.84 lbs.	0.83 Kg
Pressure Range	40-100 psi	3-7 bar
Cylinder Bore Ø	1.063 in.	27 mm
Rod Ø	0.375 in.	9.52 mm
Displacement	1.108 in^3.	18.2 cm^3
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation Time	0.70 sec.	0.70 sec.
Parts Escaped per Minute	85	85
Valve Required to Actuate	4-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

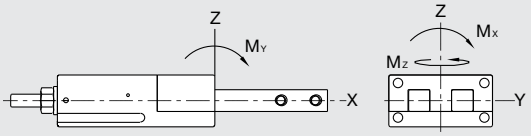
Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

Loading Information



Loading Capacity	Static	Dynamic
Maximum Moment **Mx**	250 in.-lbs. [28 Nm]	25.0 in.-lbs. [2.83 Nm]
Maximum Moment **My**	250 in.-lbs. [28 Nm]	25.0 in.-lbs. [2.83 Nm]
Maximum Moment **Mz**	250 in.-lbs. [28 Nm]	25.0 in.-lbs. [2.83 Nm]

Thrust Force of Cylinders

Thrust Force	Extend	Retract
Thrust Force @ 100 PSI	88 lbs. [394 N]	77 lbs. [345 N]
Thrust Force @ 80 PSI	71 lbs. [315 N]	62 lbs. [276 N]
Thrust Force @ 60 PSI	53 lbs. [236 N]	46 lbs. [207 N]
Thrust Force @ 40 PSI	35 lbs. [157 N]	31 lbs. [138 N]
Thrust Force @ 20 PSI	17 lbs. [78 N]	15 lbs. [69 N]

How to Order: (Order Accessories separately from Basic Model)

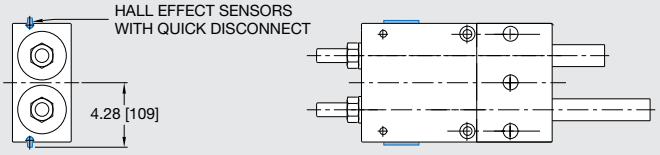
BASIC MODEL — VITON® SEALS — TOP FINGER MOUNTING

RFE-13M - T - V

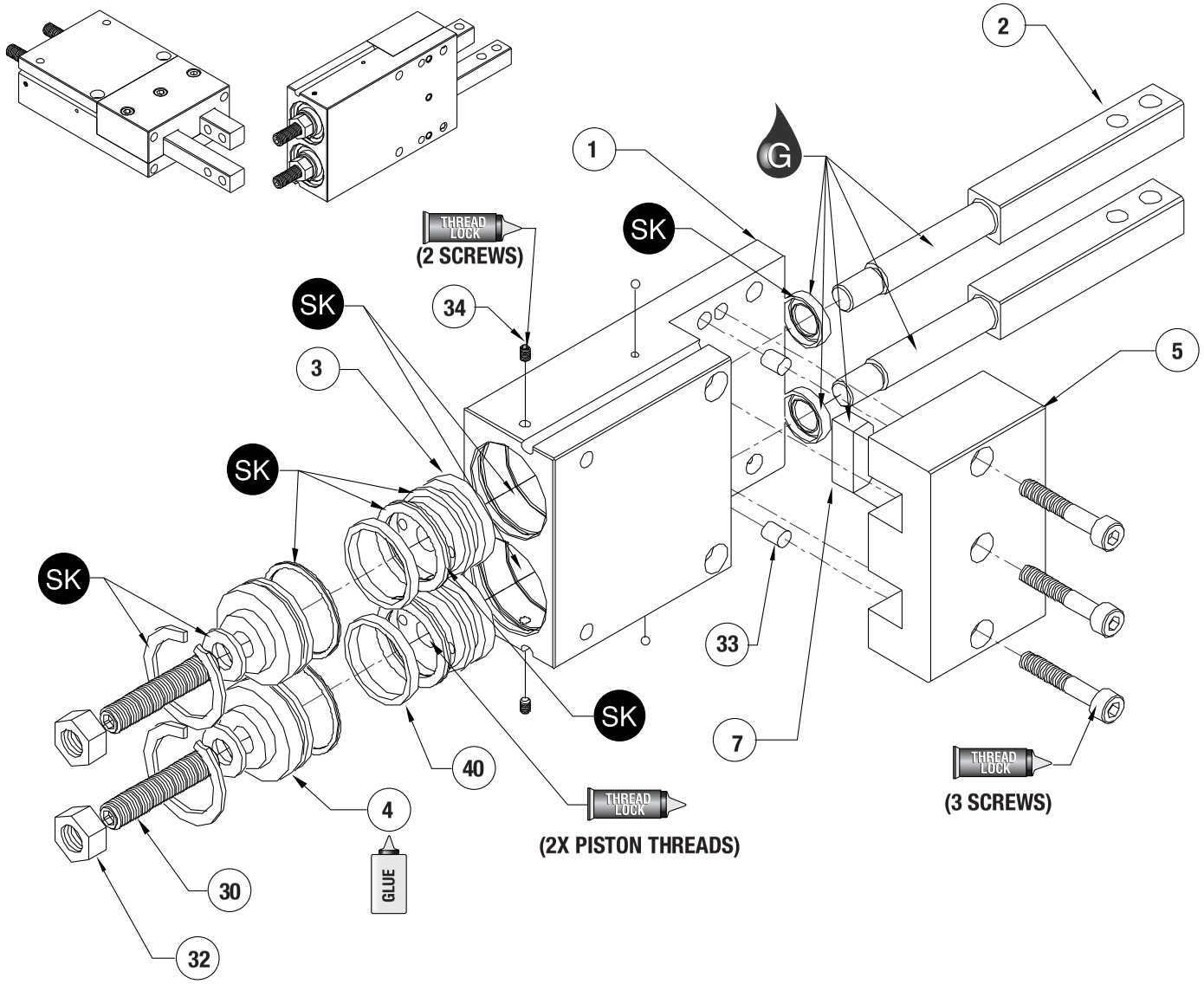
SENSOR ACCESSORIES	Order #	QTY/UNIT
NPN Hall Effect Sensor with Quick Disconnect*	**OHSN-017**	**1 or 2**
PNP Hall Effect Sensor with Quick Disconnect*	**OHSP-017**	**1 or 2**
Quick Disconnect 2M Cable Length*	**CABL-010**	**1 or 2**
Quick Disconnect 5M Cable Length*	**CABL-013**	**1 or 2**

PNEUMATIC ACCESSORIES		
M5 Adjustable Flow Control	**VLVF-008**	**1 or 2**
Standard Seal Repair Kit	**SLKT-112**	**1**
Viton® Seal Repair Kit	**SLKT-112V**	**1**

*Sensor and cable sold separately.



RFE Series Exploded View



Item	Qty	Name
01	1	Body
02	2	Finger
03	2	Piston
04	2	Cap
05	1	Cover, Finger
07	1	Shuttle Slug
30	2	Stop, Screw
32	2	Jam Nut
33	2	Dowel Pin
34	2	SSS,Cup Point
40	2	Magnet, Ring

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedure

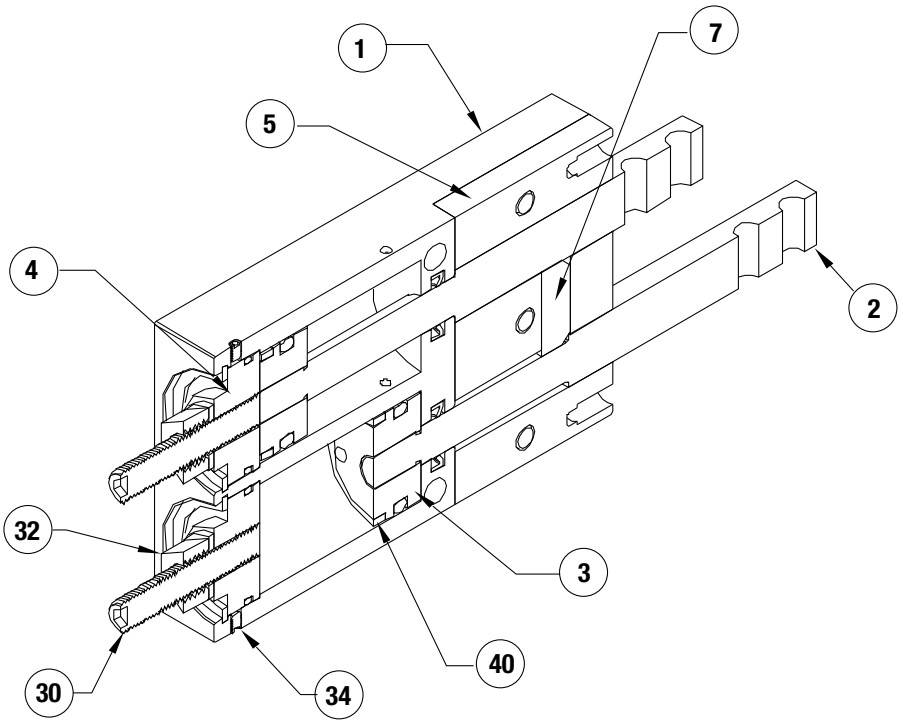
1) Super bond magnet to piston.
2) Lubricate u-cup and install into body.
3) Orient fingers and slide into body.
4) Attach pistons to fingers in bores, using spanner.
5) Install caps, o-rings and adjustment screws into body with retainer ring.
6) Lock in caps by tightening set screws.
7) Press dowel pins in finger cover.
8) Place shuttle slug in position.
9) Install finger cover.

Stroke Adjustment Procedure

1) The stroke of each finger can be adjusted by its respective set screw (#30).
2) To reduce the stroke of the desired finger on retraction, tighten its respective set screw.note: stroke can only be reduced on retraction; (the finger will always extend the same distance away from the body). Stroke cannot be increased more than the value stated in the catalog.

SK Seal Repair Kit Order #'s See Product Data Sheets

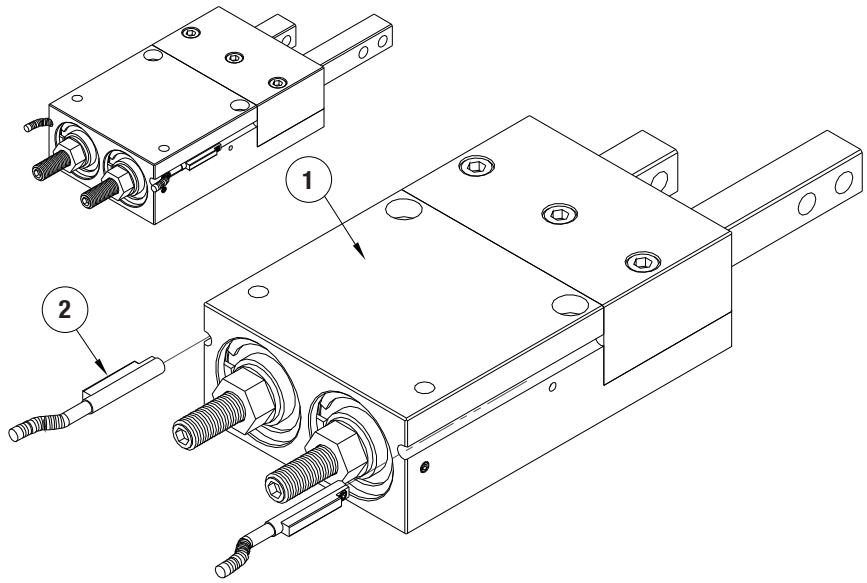
SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection



Item	Qty	Name
01	1	Body
02	2	Finger
03	2	Piston
04	2	Cap
05	1	Cover, Finger
07	1	Shuttle Slug
30	2	Stop, Screw
32	2	Jam Nut
33	2	Dowel Pin
34	2	SSS,Cup Point
40	2	Magnet, Ring

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Accessory Installation & Adjustment Instructions



Sensor Installation

1. Install sensors (2) in profile slots of escapement body (1) as shown.
2. Set sensors with integrated setscrew.

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

Robotic End Effectors

NEW

QC
Robot Tool Changer

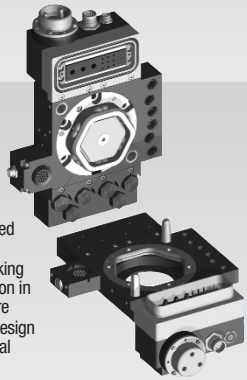
- Heady duty, spring loaded locking mechanism prevents separation in the event of loss of air pressure
- Support for optional pneumatic, fluid or electrical interface modules

See Page 7.2

NEW

RQC
Modular Tool Changer

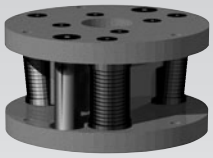
- ISO bolt patterns eliminate need for adapter plates
- Heady duty, spring loaded locking mechanism prevents separation in the event of loss of air pressure
- Highly configurable modular design accommodates up to 4 optional modular interfaces



See Page 7.22

RCW
Lateral & Angular Alignment Series

- Compensate for inaccuracy or misalignment between parts and machine in both lateral and angular axis
- Increases assembly speed while reducing wear and parts jamming
- Improves quality and reduces costs by a voiding damage of parts



See Page 7.56

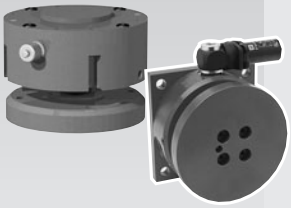
KA/CH Series
Horizontal Compliance

- Compensate for misalignment relative to the robot axis or handling arm
- Pneumatic or hydraulic operation
- Optional tool re-centering or tool release, sensor probe, adaption interface, and Viton® seals for high temperature operation

See Page 7.68, 7.78

ULS/AU Series
Emergency Stop Module

- Detects abnormal forces or shocks and aborts operation
- Provides protection to robot, tooling, and it's surroundings
- Manual re-adjustment is required except for vertical collision



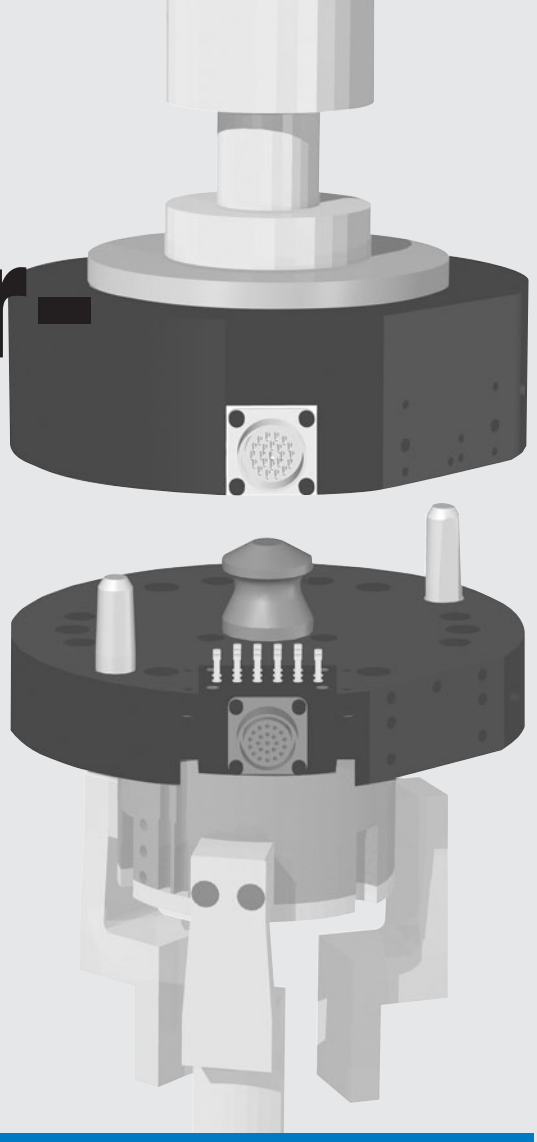
See Page 7.88, 7.98

AUR Series
Resettable Emergency Stop Module

- Detects abnormal forces or shocks and aborts opera tion
- Provides protection to robot, tooling, and it's surroundings
- Pneumatically assisted to facilitate repositioning after collision

See Page 7.108

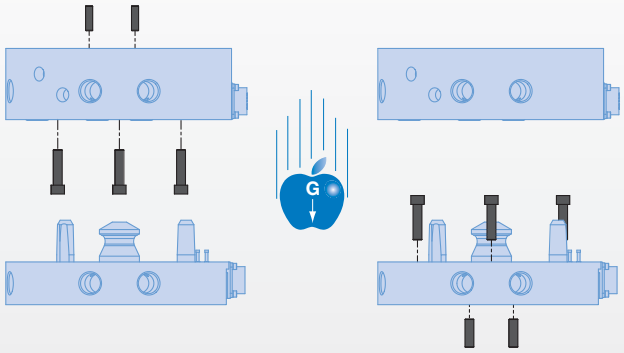
QC Series Tool Changer– Medium Loads



- **Robotic applications:** Perfect for those flexible/multiple tooling applications utilizing one Robot. This product was designed with exceptional repeatability, high rigidity & load capacity to make it ideal for any robotic application.
- **Automation applications:** End effector tooling and interchangeable fixturing can be changed quickly and easily to accommodate many different styles of parts on the same assembly machine or machining center.

Mounting Information:

Robot side has counterbored holes for mounting and two dowel pins for hole location (size 30 has pilot boss)



Tool side has counterbored holes for mounting and two dowel pins for hole location (size 30 has pilot boss)

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting, Spring Assist**	
Valve Required to Operate	**4-way, 2-position** (except QC-30)	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***†
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

†See Maintenance Section.
*Addition of lubrication will greatly increase service life

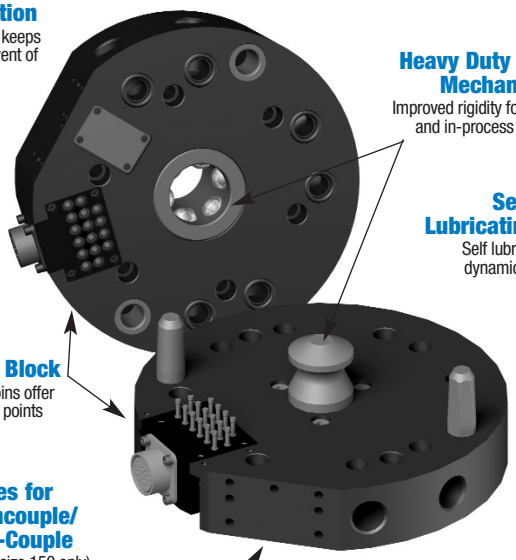
Application Restrictions
- Dirty or gritty environments
- Machining operations generating chips
- Environments with loose particulate

See Maintenance Section for:

Exploded views and spare parts list **7.18**
Drawing sections and assembly procedures **7.19**
QC Series cross-reference **7.20**
Tool Changer terminology **7.54**

For more information call us at: **1.888.DESTACO** or **248.836.6700** Fax: **248.836.6901** Visit us on the Internet at: **www.destaco.com**

Product Features



Failsafe Operation
Failsafe locking spring keeps units coupled in the event of pressure loss

Heavy Duty Locking Mechanism
Improved rigidity for heavy-duty and in-process changing

Durable Components
Locking components are made from hardened bearing & tool steels

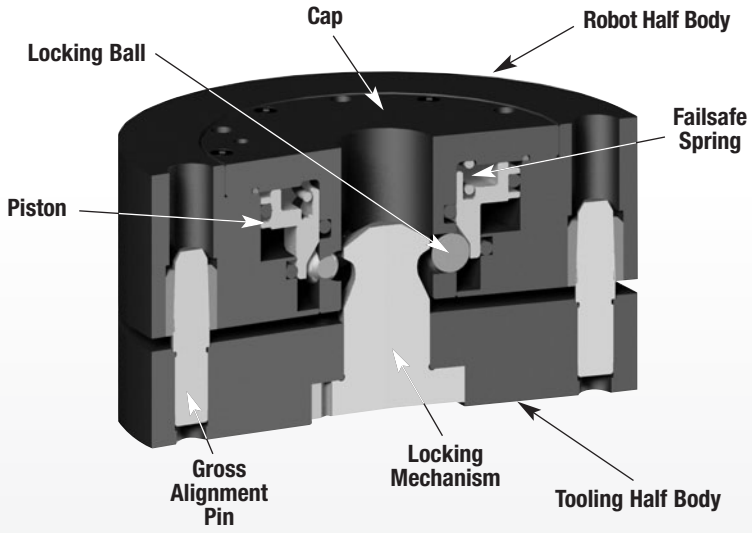
Self Lubricating Seals
Self lubricating dynamic seals

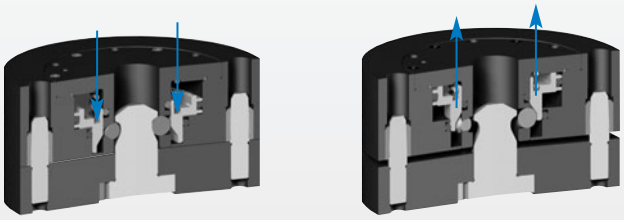
Offboard I/O Block
with heavy-duty pins offer reliable contact points

Switches for Couple/Uncouple/ Ready-to-Couple
Switch for latch (size 150 only)

Module Mounting Surface
Flat for optional pneumatic, fluid or electric module

Operating Principle





Locked Position | Unlocked Position

- The tool half is inserted into the robot half.
- The robot half has a spring assisted double acting piston (QC-30 single acting only). When the piston is actuated the locking balls are driven under the locking mechanism. Thus locking the halves together.
- The fail-safe spring maintains the piston position in the event of pressure loss and the connected units must receive air pressure to de-couple.

Style-QC Robot Half

Size-30

Style:	QC-30	
Max. Payload:	30 lbs.	13.6 Kg
Max. Moment:	200 in-lbs.	22.6 Nm
Weight:	0.50 lbs.	0.23 Kg

See Page 7.4

Style-TP Tool Half

Size-30

Style:	TP-30	
Max. Payload:	30 lbs.	13.6 Kg
Max. Moment:	200 in-lbs.	22.6 Nm
Weight:	0.25 lbs.	0.11 Kg

See Page 7.5

Style-QC Robot Half

Size-60

Style:	QC-60	
Max. Payload:	60 lbs.	27 Kg
Max. Moment:	780 in-lbs.	88.1 Nm
Weight:	1.9 lbs.	0.86 Kg

See Page 7.6

Style-TP Tool Half

Size-60

Style:	TP-60	
Max. Payload:	60 lbs.	27 Kg
Max. Moment:	780 in-lbs.	88.1 Nm
Weight:	0.90 lbs.	0.41 Kg

See Page 7.7

Style-QC Robot Half

Size-60 10-Port

Style:	QC-60 10-Port	
Max. Payload:	60 lbs.	27 Kg
Max. Moment:	780 in-lbs.	88.1 Nm
Weight:	1.9 lbs.	0.86 Kg

See Page 7.8

Style-TP Tool Half

Size-60 10-Port

Style:	TP-60 10-Port	
Max. Payload:	60 lbs.	27 Kg
Max. Moment:	780 in-lbs.	88.1 Nm
Weight:	0.90 lbs.	0.41 Kg

See Page 7.9

Style-QC Robot Half

Size-150

Style:	QC-150	
Max. Payload:	150 lbs.	68 Kg
Max. Moment:	1900 in-lbs.	215 Nm
Weight:	4.8 lbs.	2.2 Kg

See Page 7.10

Style-TP Tool Half

Size-150

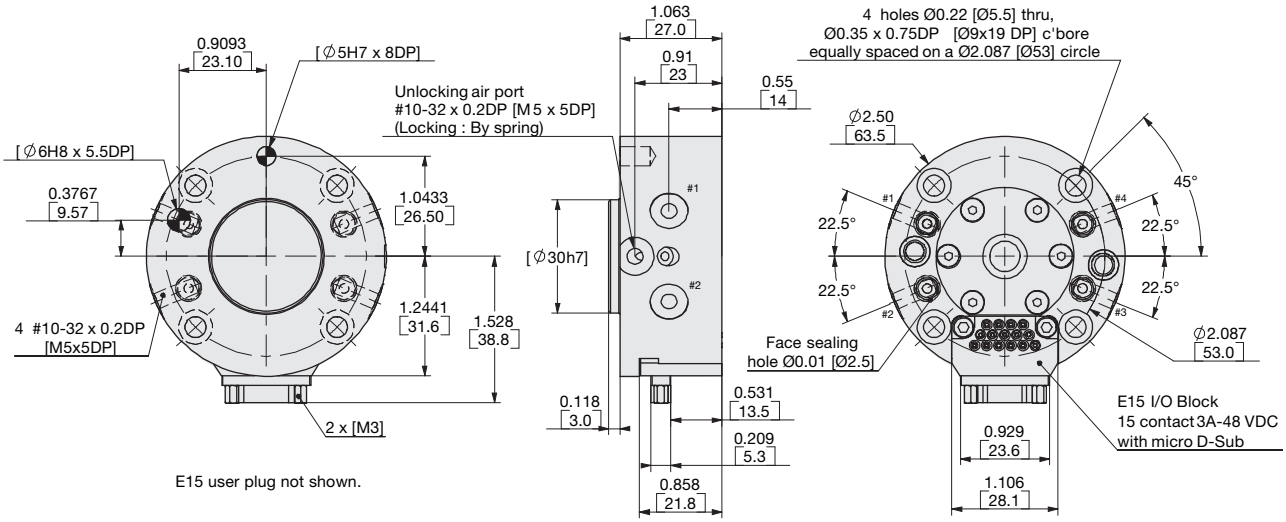
Style:	TP-150	
Max. Payload:	150 lbs.	68 Kg
Max. Moment:	1900 in-lbs.	215 Nm
Weight:	2.3 lbs.	1.0 Kg

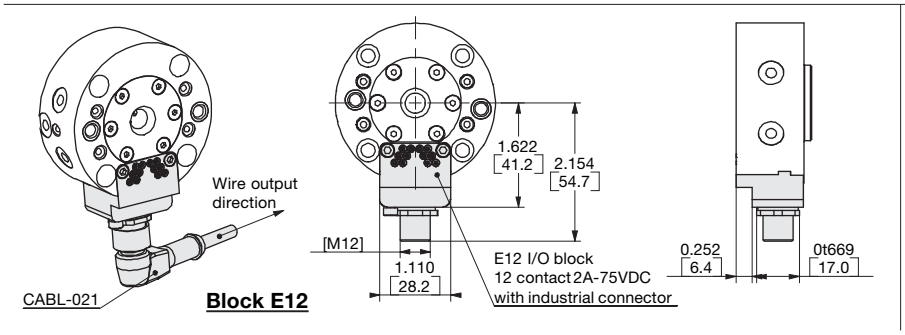
See Page 7.11

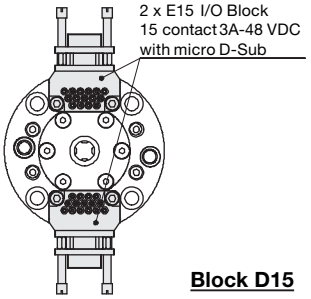
Options and Accessories

See Page 7.12

TOOL CHANGER QC-30
ROBOT ADAPTER MODULE







Specifications	QC-30	
Maximum Payload	30 lbs	13.6 Kg
Maximum Moment Rating	200 in-lbs	22.6 Nm
Weight of **QC** Unit only	0.50 lbs	0.23 Kg
Weight of Coupled Units	0.75 lbs	0.34 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Bore Ø	1.00 in	25.4 mm
Displacement	0.24 in^3	3.9 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	± 0.001 in.	±0.025 mm
Valve required to actuate	3-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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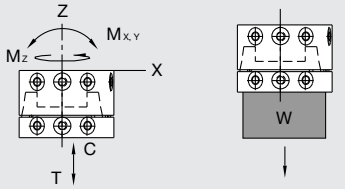
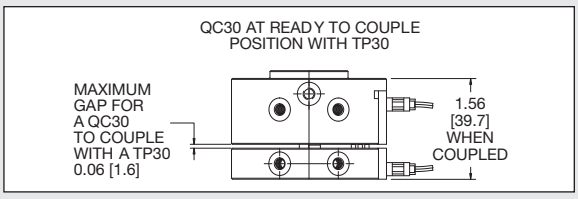


Loading Capacity	Imperial	Metric
Maximum Tensile **T**	70 lbs.	311 N
Maximum Compressive **C**	100 lbs.	445 N
Maximum Moment M_x	200 in.-lbs.	22.6 Nm
Maximum Moment M_y	200 in.-lbs.	22.6 Nm
Maximum Moment M_z	200 in.-lbs.	22.6 Nm



How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL: **QC - 30** | PORT: [ ] | SIZE: **-** | I/O BLOCK: [ ]

PORT

BLANK	Imperial
M	Metric

I/O BLOCK

E15	15 Pin I/O Block with Micro D-Sub Connector, w/1.2M Cordset
D15	2X 15 Pin I/O Block with Micro D-Sub Conn, w/1.2M Cordset
E12	12 Pin I/O Block with Turck M12 Connector, w/o Cordset
0	without I/O Block

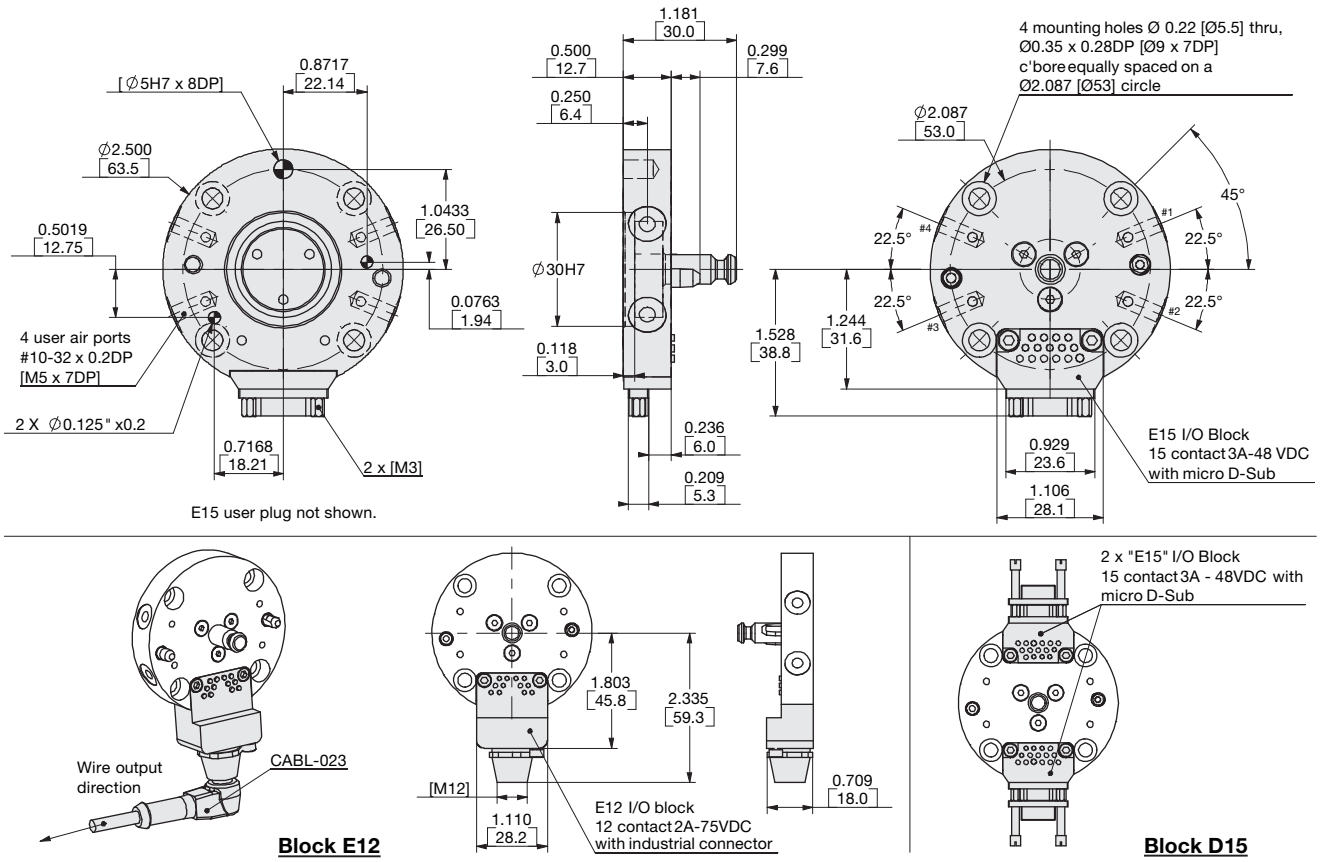
REPLACEMENT I/O MODULE ACCESSORIES	ORDER #	QTY/UNIT
15 Pin I/O Block with Micro D-Sub Connector, w/1.2M Cordset	**KE15-QC30**	**1**
12 Pin I/O Block with Turck M12 Connector, w/o Cordset	**KE12-QC30**	**1**
Straight Male Cordset 1.2M for E15	**CABL-024**	**1**
90° Female Cordset 4M for E12	**CABL-021**	**1**

ADAPTER PLATES

Consult Factory

PNEUMATIC ACCESSORIES

Seal Repair Kit	**SLKT-387**	**1**
Face Seal Repair Kit	**SLKT-388**	**1**



Specifications	TP-30	
Maximum Payload	30 lbs	13.6 Kg
Maximum Moment Rating	200 in-lbs	22.6 Nm
Weight of **TP** Unit only	0.25 lbs	0.11 Kg
Weight of Coupled Units	0.75 lbs	0.34 Kg
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	± 0.001 in.	±0.025 mm

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
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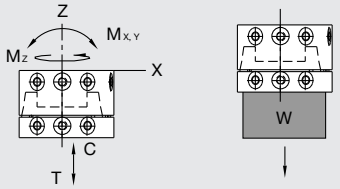
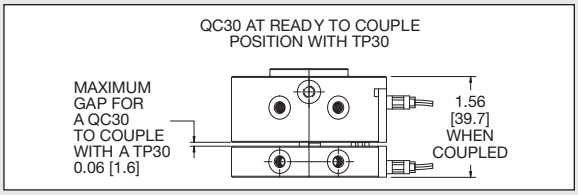


Loading Capacity

	Imperial	Metric
Maximum Tensile **T**	70 lbs.	311 N
Maximum Compressive **C**	100 lbs.	445 N
Maximum Moment M_x	200 in.-lbs.	22.6 Nm
Maximum Moment M_y	200 in.-lbs.	22.6 Nm
Maximum Moment M_z	200 in.-lbs.	22.6 Nm



How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — PORT

TP - 30 [ ] - [ ]

SIZE — I/O BLOCK

PORT	**BLANK**	Imperial
	M	Metric
I/O BLOCK	**E15**	15 Pin I/O Block with Micro D-Sub Connector, w/1.2M Cordset
	D15	2X 15 Pin I/O Block with Micro D-Sub Conn, w/1.2M Cordset
	E12	12 Pin I/O Block with Turck M12 Connector, w/o Cordset
	0	without I/O Block

REPLACEMENT I/O MODULE ACCESSORIES	ORDER #	QTY/UNIT
15 Pin I/O Block with Micro D-Sub Connector, w/1.2M Cordset	**KE15-TP30**	**1**
12 Pin I/O Block with Turck M12 Connector, w/o Cordset	**KE12-TP30**	**1**
Straight Male Cordset 1.2M for E15	**CABL-024**	**1**
90° Male Cordset 2M for E12	**CABL-023**	**1**

TOOL CHANGER QC-60
ROBOT ADAPTER MODULE

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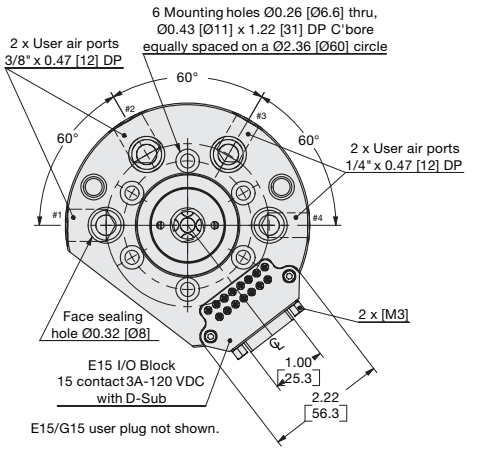
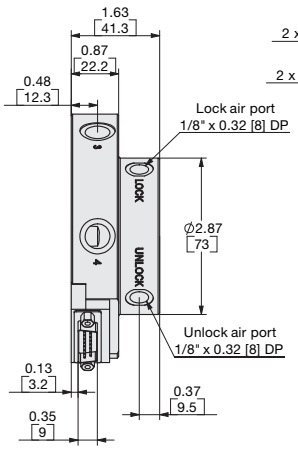
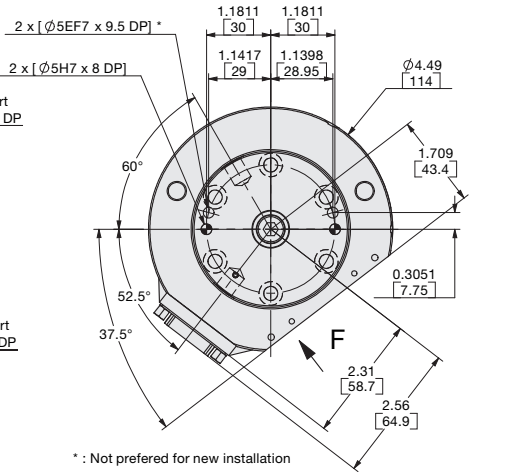
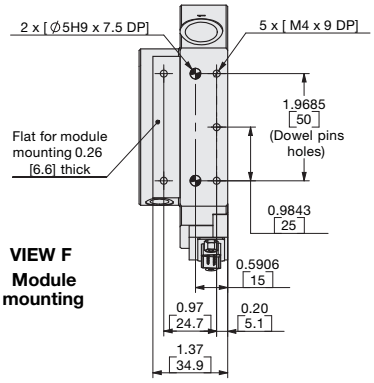
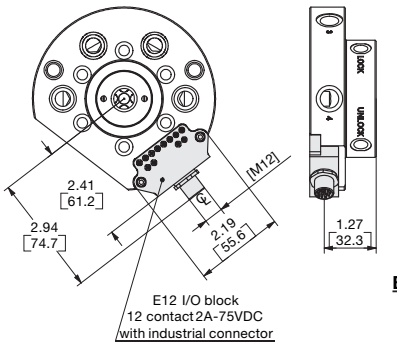
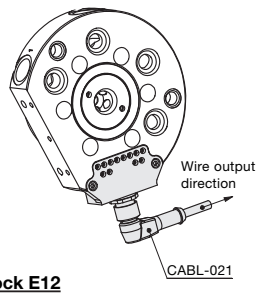






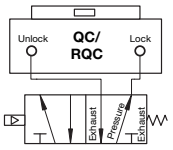






Block E12

Failsafe operation:
4-way valves with a spring return are recommended to maintain air pressure to the lock port during emergency stop conditions.



Specifications	QC-60	
Maximum Payload	60 lbs	27 Kg
Maximum Moment Rating	780 in-lbs	88.1 Nm
Weight of **QC** Unit only	1.9 lb	0.86 Kg
Weight of Coupled Units	2.8 lbs	1.27 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Bore Ø	1.75 in.	44.5 mm
Displacement	0.56 in^3	9.2 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	± 0.001 in.	±0.025 mm
Valve required to actuate	4-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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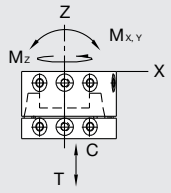
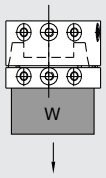
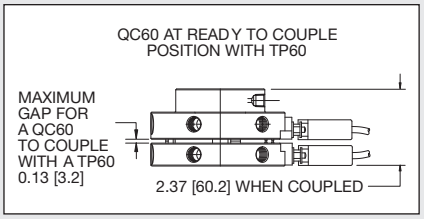




Loading Capacity	Imperial	Metric
Maximum Tensile **T**	100 lbs.	445 N
Maximum Compressive **C**	120 lbs.	534 N
Maximum Moment M_x	780 in.-lbs.	88.1 Nm
Maximum Moment M_y	780 in.-lbs.	88.1 Nm
Maximum Moment M_z	780 in.-lbs.	88.1 Nm



How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | PORT | MODULE

QC - 60 [ ] - [ ] - [ ]

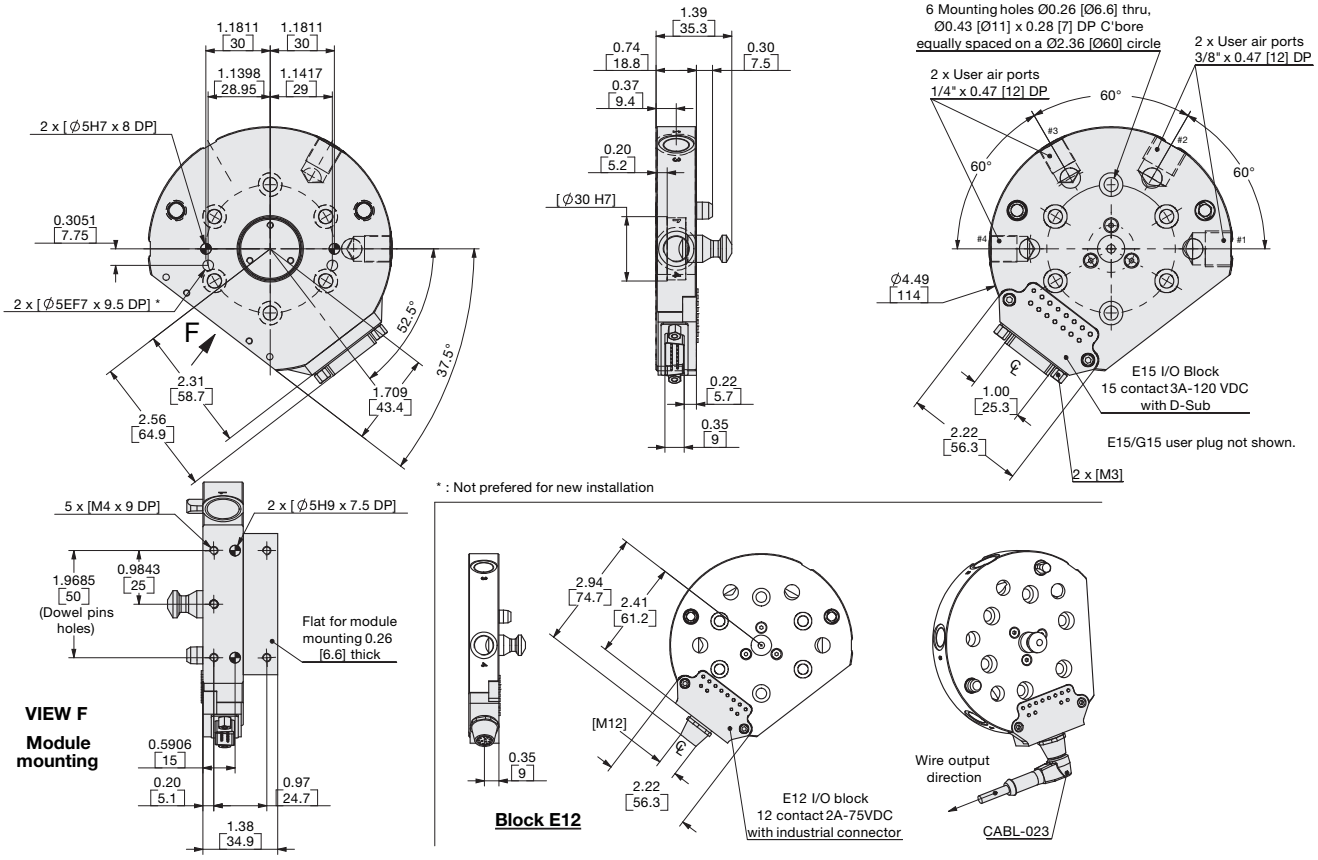
SIZE | I/O BLOCK

PORT:
Blank NPT port
M BSPP ports
A BSPT ports

I/O BLOCK
E15 15 Pin I/O Block with D-Sub Connector and User Plug, without Cable
G15* 15 Pin I/O Block Non-Recessed, with D-Sub Connector and User Plug, without Cable
E12 12 Pin I/O Block w/Turck M12 Conn, w/o Cordset
0 without I/O Block
*For previous installations only. New Installations use E15.

MODULE:
E26 26 pin, 5A Module w/Ind. User Connector
E19 19 pin, 5A Module w/Ind. User Connector
E10 10 pin, 13A Module w/Ind. User Connector
PN18 4X 1/8" NPT Pneumatic Ports, 10 bar
PP18 4X 1/8" BSPP Pneumatic Ports, 10 bar
PT18 4X 1/8" BSPT Pneumatic Ports, 10 bar
PN14 2X 1/4" NPT Pneumatic Ports, 10 bar
PP14 2X 1/4" BSPP Pneumatic Ports, 10 bar
PT14 2X 1/4" BSPT Pneumatic Ports, 10 bar
HN38 2X 3/8" NPT Fluid Ports, 100 bar

REPLACEMENT I/O MODULE ACCESSORIES	ORDER #	QTY/UNIT
15 Pin I/O Block with D-Sub Connector and User Plug, w/o Cable	**KE15-QC60**	**1**
15 Pin I/O Block Non-Recessed, with D-Sub Connector and User Plug, w/o Cable	**KG15-QC60**	**1**
12 Pin I/O Block with Turck M12 Connector, w/o Cordset	**KE12-QC60**	**1**
Straight Female D-Sub User Plug, w/o Cable, Solder Type for E15/G15	**ELCT-047**	**1**
90° Female Cordset 4M for E12	**CABL-021**	**1**
ADAPTER PLATES		
Consult Factory		
PNEUMATIC ACCESSORIES		
Seal Repair Kit	**SLKT-389**	**1**
Face Seal Repair Kit	**SLKT-390**	**1**



Specifications		TP-60
Maximum Payload	60 lbs	27 Kg
Maximum Moment Rating	780 in-lbs	88 Nm
Weight of **TP** Unit only	0.90 lb	0.41 Kg
Weight of Coupled Units	2.8 lbs	1.27 Kg
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	± 0.001 in.	±0.025 mm

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ±.01	[0.] = [±.25]
				0.000 = ±.005	[0.0] = [±.13]
				0.0000 = ±.0005	[0.00] = [±.013]

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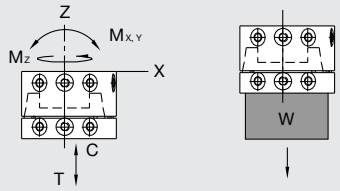
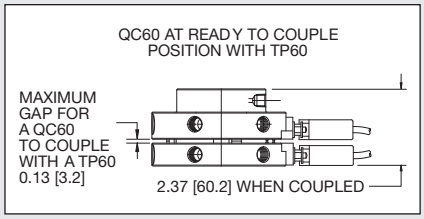


Loading Capacity	Imperial	Metric
Maximum Tensile **T**	100 lbs.	445 N
Maximum Compressive **C**	120 lbs.	534 N
Maximum Moment **Mx**	780 in.-lbs.	88.1 Nm
Maximum Moment **My**	780 in.-lbs.	88.1 Nm
Maximum Moment **Mz**	780 in.-lbs.	88.1 Nm



How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | PORT | MODULE

TP - 60 [ ] - [ ] - [ ]

SIZE | I/O BLOCK

PORT:
- **Blank** NPT port
- **M** BSPP ports
- **A** BSPT ports

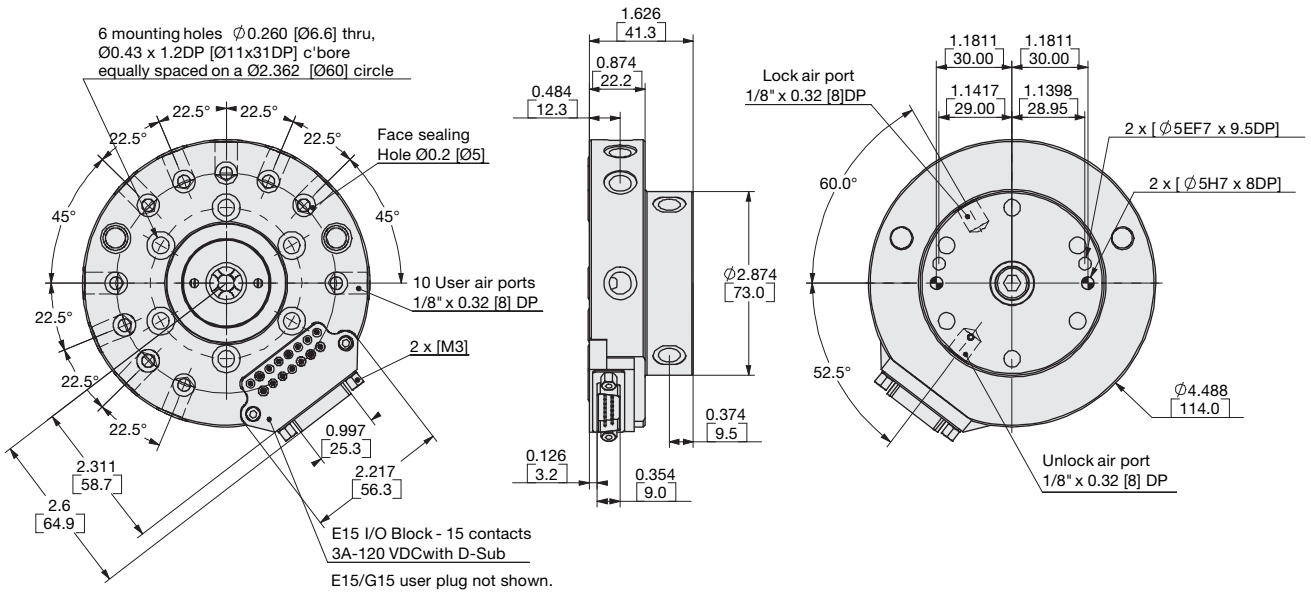
I/O BLOCK
- **E15** 15 Pin I/O Block with D-Sub Connector and User Plug, without Cable
- **G15*** 15 Pin I/O Block Non-Recessed, with D-Sub Connector and User Plug, without Cable
- **E12** 12 Pin I/O Block w/Turck M12 Conn, w/o Cordset
- **0** without I/O Block

*For previous installations only. New Installations use E15.

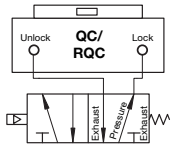
MODULE:
- **E26** 26 pin, 5A Module w/Ind. User Connector
- **E19** 19 pin, 5A Module w/Ind. User Connector
- **E10** 10 pin, 13A Module w/Ind. User Connector
- **PN18** 4X 1/8" NPT Pneumatic Ports, 10 bar
- **PP18** 4X 1/8" BSPP Pneumatic Ports, 10 bar
- **PT18** 4X 1/8" BSPT Pneumatic Ports, 10 bar
- **PN14** 2X 1/4" NPT Pneumatic Ports, 10 bar
- **PP14** 2X 1/4" BSPP Pneumatic Ports, 10 bar
- **PT14** 2X 1/4" BSPT Pneumatic Ports, 10 bar
- **HN38** 2X 3/8" NPT Fluid Ports, 100 bar

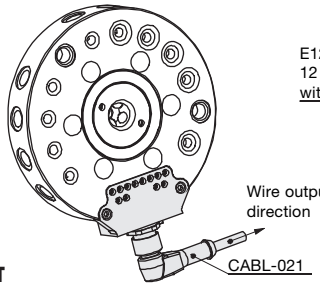
REPLACEMENT I/O MODULE ACCESSORIES	ORDER #	QTY/UNIT
15 Pin I/O Block with D-Sub Connector and User Plug, w/o Cable	**KE15-TP60**	**1**
15 Pin I/O Block Non-Recessed, with D-Sub Connector and User Plug, w/o Cable	**KG15-TP60**	**1**
12 Pin I/O Block with Turck M12 Connector, w/o Cordset	**KE12-TP60**	**1**
Straight Female D-Sub User Plug, w/o Cable, Solder Type for E15/G15	**ELCT-047**	**1**
90° Male Cordset 2M for E12	**CABL-023**	**1**

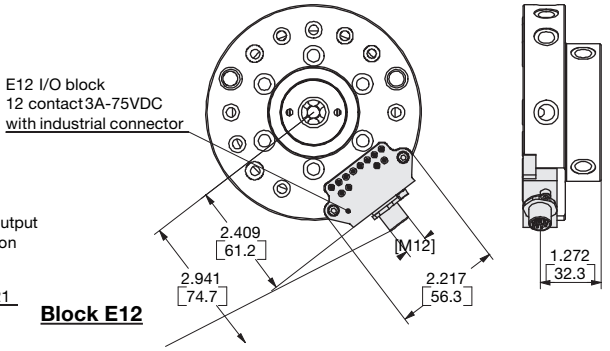
TOOL CHANGER QC-60 10-PORT
ROBOT ADAPTER MODULE



Failsafe operation:
4-way valves with a spring return are recommended to maintain air pressure to the lock port during emergency stop conditions.







Block E12

Specifications	QC-60 10-PORT	
Maximum Payload	60 lbs	27 Kg
Maximum Moment Rating	780 in-lbs	88.1 Nm
Weight of **QC** Unit only	1.9 lb	0.86 Kg
Weight of Coupled Units	2.8 lbs	1.27 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Bore Ø	1.75 in.	44.5 mm
Displacement	0.56 in^3.	9.2 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	± 0.001 in.	±0.025 mm
Valve required to actuate	4-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
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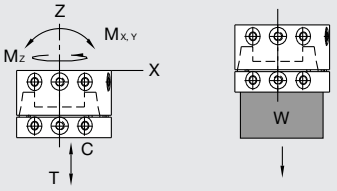
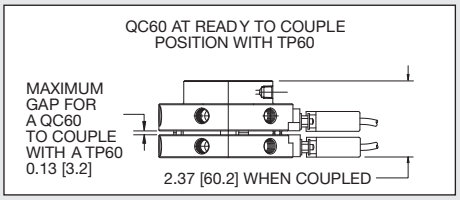


Loading Capacity	Imperial	Metric
Maximum Tensile **T**	100 lbs.	445 N
Maximum Compressive **C**	120 lbs.	534 N
Maximum Moment M_X	780 in.-lbs.	88.1 Nm
Maximum Moment M_Y	780 in.-lbs.	88.1 Nm
Maximum Moment M_Z	780 in.-lbs.	88.1 Nm



How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | PORT | SIZE | I/O BLOCK

QC - 60 [ ] - [ ] - 10P

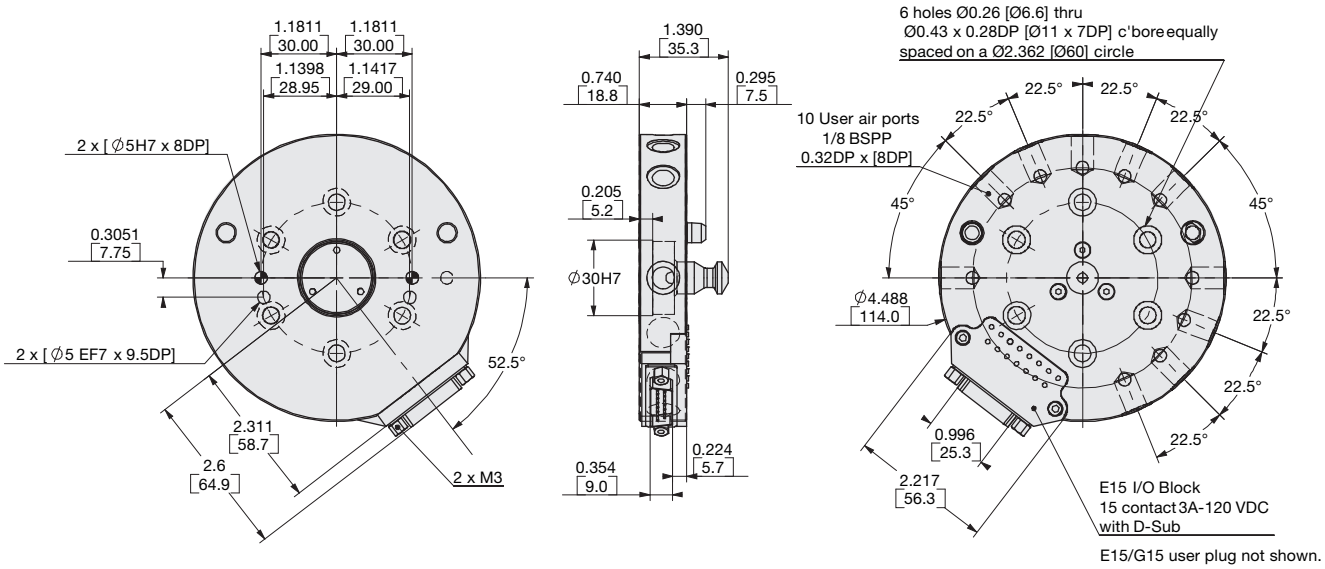
PORT:
- **Blank** NPT port
- **M** BSPP ports
- **A** BSPT ports

I/O BLOCK
- **E15** 15 Pin I/O Block with D-Sub Connector and User Plug, w/o Cable
- **G15*** 15 Pin I/O Block Non-Recessed,w/D-Sub Connector and User Plug, w/o Cable
- **E12** 12 Pin I/O Block w/Turk M12 Connector, w/o Cordset
- **0** without I/O Block

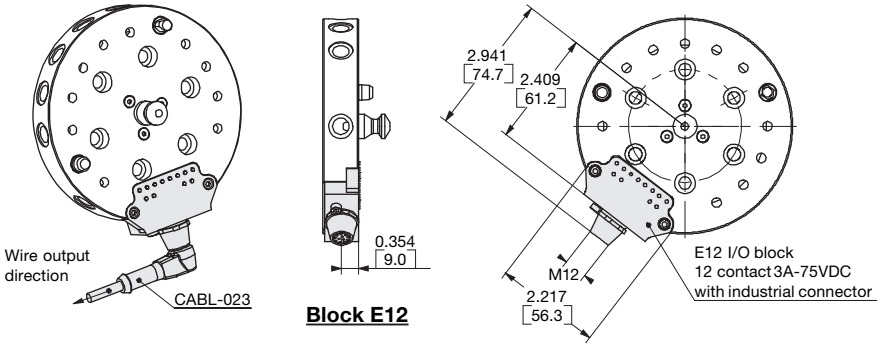
*For previous installations only. New Installations use E15.

REPLACEMENT I/O MODULE ACCESSORIES	ORDER #	QTY/UNIT
15 Pin I/O Block with D-Sub Connector and User Plug, w/o Cable	**KE15-QC60**	**1**
15 Pin I/O Block Non-Recessed, w/D-Sub Connector, User Plug, w/o Cable	**KG15-QC60**	**1**
12 Pin I/O Block with Turck M12 Connector, w/o Cordset	**KE12-QC60**	**1**
Straight Female D-Sub User Plug, w/o Cable, Solder Type for E15/G15	**ELCT-047**	**1**
90° Female Cordset 4M for E12	**CABL-021**	
ADAPTER PLATES		
Consult Factory		
PNEUMATIC ACCESSORIES		
Seal Repair Kit	**SLKT-389**	**1**
Face Seal Repair Kit	**SLKT-392**	**1**

TOOL CHANGER TP-60 10-PORT
TOOLING ADAPTER MODULE



E15/G15 user plug not shown.



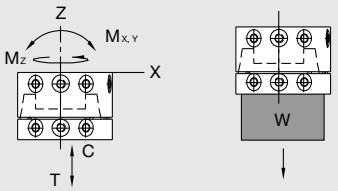
Block E12

Specifications	TP-60 10-PORT	
Maximum Payload	60 lbs	27 Kg
Maximum Moment Rating	780 in-lbs	88 Nm
Weight of **TP** Unit only	0.90 lb	0.41 Kg
Weight of Coupled Units	2.8 lbs	1.27 Kg
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	± 0.001 in.	±0.025 mm

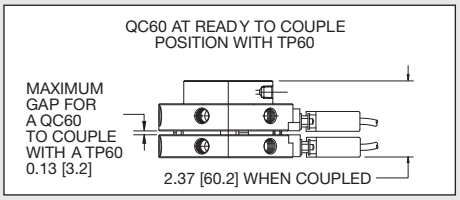
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information



Loading Capacity	Imperial	Metric
Maximum Tensile **T**	100 lbs.	445 N
Maximum Compressive **C**	120 lbs.	534 N
Maximum Moment M_x	780 in.-lbs.	88.1 Nm
Maximum Moment M_y	780 in.-lbs.	88.1 Nm
Maximum Moment M_z	780 in.-lbs.	88.1 Nm



How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | PORT | SIZE | I/O BLOCK

TP - 60 [ ] - [ ] - 10P

PORT:

Blank	NPT port
M	BSPP ports
A	BSPT ports

I/O BLOCK

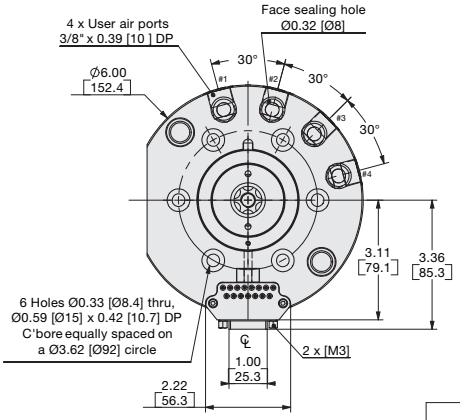
E15	15 Pin I/O Block with D-Sub Connector and User Plug, w/o Cable
G15*	15 Pin I/O Block Non-Recessed,w/D-Sub Connector and User Plug, w/o Cable
E12	12 Pin I/O Block w/Turk M12 Connector, w/o Cordset
0	without I/O Block

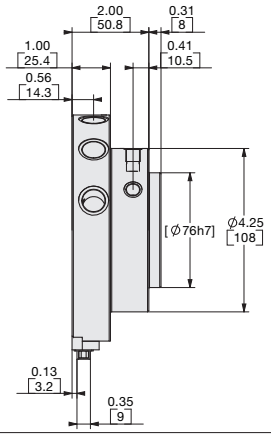
*For previous installations only. New Installations use E15.

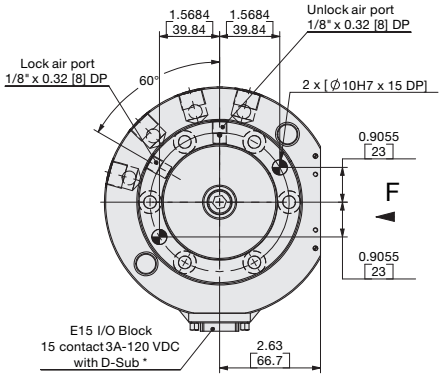
REPLACEMENT I/O MODULE ACCESSORIES	ORDER #	QTY/UNIT
15 Pin I/O Block with D-Sub Connector and User Plug, w/o Cable	**KE15-TP60**	**1**
15 Pin I/O Block Non-Recessed, w/D-Sub Connector, User Plug, w/o Cable	**KG15-TP60**	**1**
12 Pin I/O Block with Turck M12 Connector, w/o Cordset	**KE12-TP60**	**1**
Straight Female D-Sub User Plug, w/o Cable, Solder Type for E15/G15	**ELCT-047**	**1**
90° Male Cordset 2M for E12	**CABL-023**	**1**

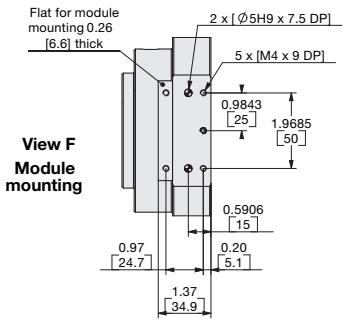
TOOL CHANGER QC-150
ROBOT ADAPTER MODULE

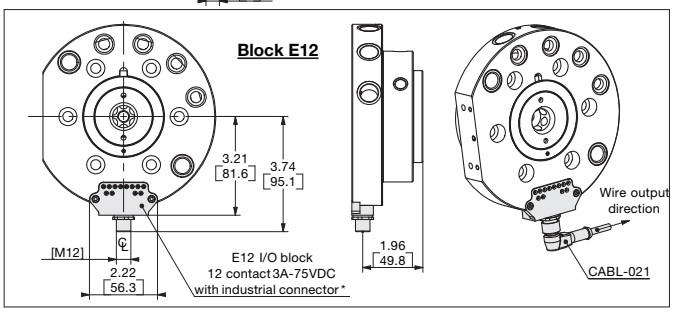
Robohand



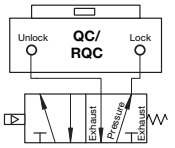


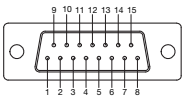






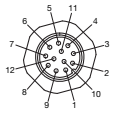
Failsafe operation:
4-way valves with a spring return are recommended to maintain air pressure to the lock port during emergency stop conditions.





Block E15

* LP or LN option (latch sensor) requieres 1 (-), 6 (output) and 7 (+) contacts



Block E12

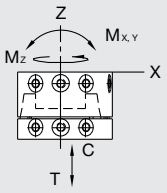
Specifications

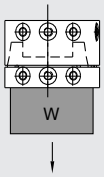
	QC-150	
Maximum Payload	150 lbs	68 Kg
Maximum Moment Rating	1900 in-lbs	215 Nm
Weight of **QC** Unit only	4.8 lb	2.2 Kg
Weight of Coupled Units	7.1 lbs	3.2 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Bore Ø	2.63 in.	66.8 mm
Displacement	1.55 in^3.	25.4 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	± 0.001 in.	±0.025 mm
Valve required to actuate	4-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

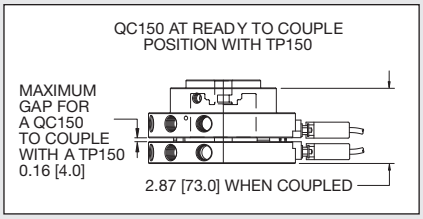
Loading Information





Loading Capacity

	Imperial	Metric
Maximum Tensile **T**	200 lbs.	890 N
Maximum Compressive **C**	300 lbs.	1334 N
Maximum Moment M_x	1900 in.-lbs.	214 Nm
Maximum Moment **My**	1900 in.-lbs.	214 Nm
Maximum Moment M_z	1900 in.-lbs.	214 Nm



How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | PORT | SENSING

QC - 150 [ ] - [ ] - [ ] - [ ]

SIZE | I/O BLOCK | MODULE

PORT:
- **Blank** NPT port
- **M** BSPP ports
- **A** BSPT ports

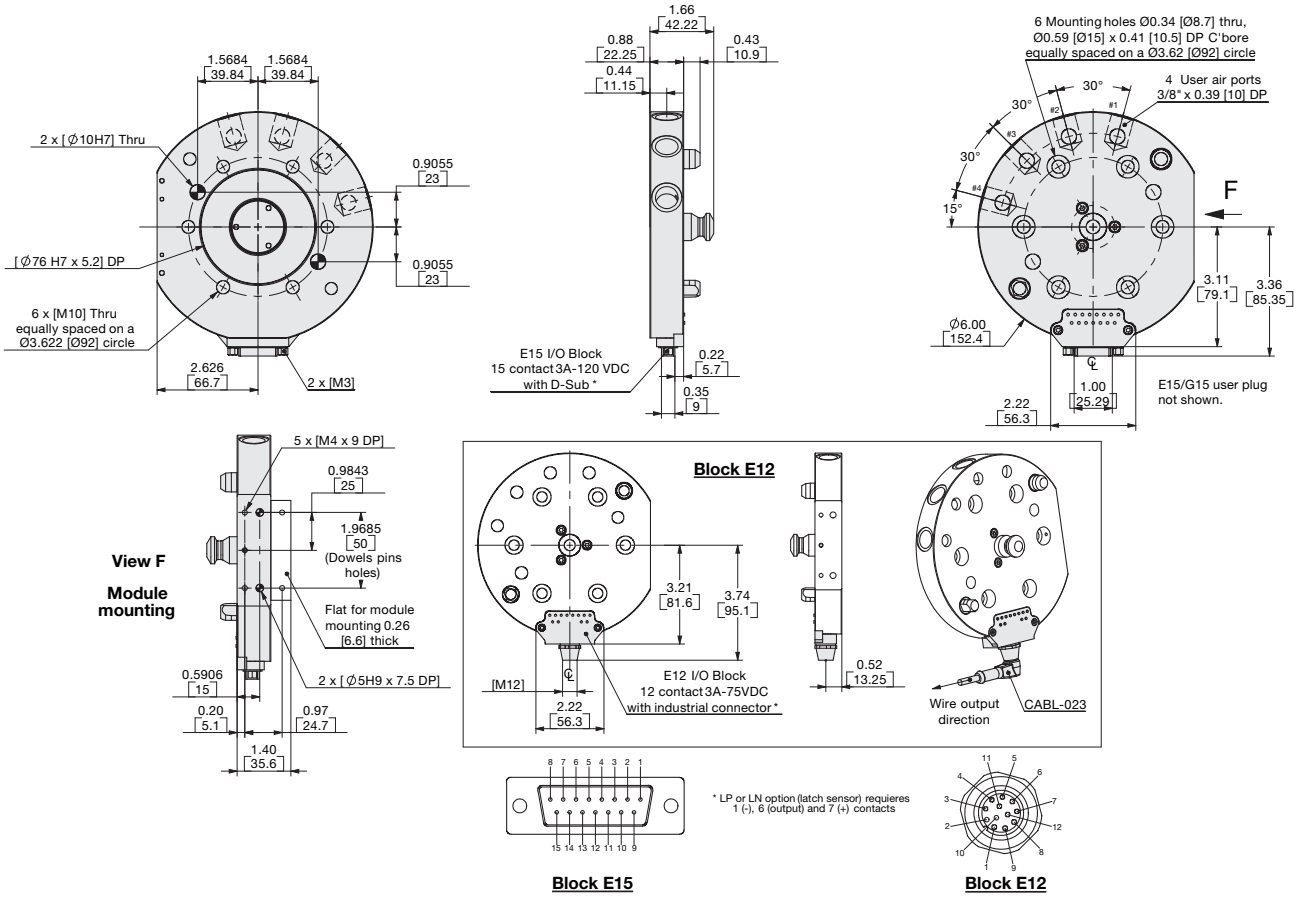
I/O BLOCK
- **E15** 15 Pin I/O Block with D-Sub Connector and User Plug, without Cable
- **G15*** 15 Pin I/O Block Non-Recessed, with D-Sub Connector and User Plug, without Cable
- **E12** 12 Pin I/O Block w/Turck M12 Conn, w/o Cordset
- **0** without I/O Block

*For previous installations only. New Installations use E15.

SENSING:
- **LP** PNP Inductive Latch Sensor
- **LN** NPN Inductive Latch Sensor
- **0** without Sensing

MODULE:
- **E26** 26 pin, 5A Module w/Ind. User Connector
- **E19** 19 pin, 5A Module w/Ind. User Connector
- **E10** 10 pin, 13A Module w/Ind. User Connector
- **PN18** 4X 1/8" NPT Pneumatic Ports, 10 bar
- **PP18** 4X 1/8" BSPP Pneumatic Ports, 10 bar
- **PT18** 4X 1/8" BSPT Pneumatic Ports, 10 bar
- **PN14** 2X 1/4" NPT Pneumatic Ports, 10 bar
- **PP14** 2X 1/4" BSPP Pneumatic Ports, 10 bar
- **PT14** 2X 1/4" BSPT Pneumatic Ports, 10 bar
- **HN38** 2X 3/8" NPT Fluid Ports, 100 bar

REPLACEMENT I/O MODULE ACCESSORIES	ORDER #	QTY/UNIT
15 Pin I/O Block with D-Sub Connector and User Plug, w/o Cable	**KE15-QC150**	**1**
15 Pin I/O Block Non-Recessed, w/D-Sub Connector, User Plug, w/o Cable	**KG15-QC150**	**1**
12 Pin I/O Block with Turck M12 Connector, w/o Cordset	**KE12-QC150**	**1**
Straight Female D-Sub User Plug, w/o Cable, Solder Type for E15/G15	**ELCT-047**	**1**
90° Female Cordset 4M for E12	**CABL-021**	**1**
NPN Inductive Sensor Repair Kit	**OSRK-009**	**1**
PNP Inductive Sensor Repair Kit	**OSRK-010**	**1**
ADAPTER PLATES		
Consult Factory		
PNEUMATIC ACCESSORIES		
Seal Repair Kit	**SLKT-393**	**1**
Face Seal Repair Kit	**SLKT-390**	**1**



Block E15 | Block E12

Specifications	TP-150	
Maximum Payload	150 lbs	68 Kg
Maximum Moment Rating	1900 in-lbs	215 Nm
Weight of **TP** Unit only	2.3 lb	1.0 Kg
Weight of Coupled Units	7.1 lbs	3.2 Kg
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	± 0.001 in.	±0.025 mm

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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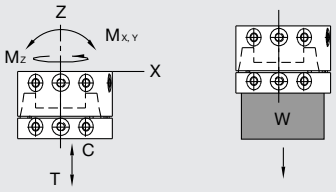
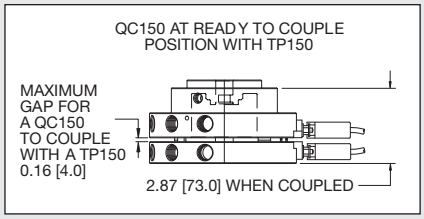


Loading Capacity	Imperial	Metric
Maximum Tensile **T**	200 lbs.	890 N
Maximum Compressive **C**	300 lbs.	1334 N
Maximum Moment **Mx**	1900 in.-lbs.	214 Nm
Maximum Moment **My**	1900 in.-lbs.	214 Nm
Maximum Moment **Mz**	1900 in.-lbs.	214 Nm



How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL | PORT | MODULE

TP - 150 [ ] - [ ] - [ ]

SIZE | I/O BLOCK

PORT:
- **Blank** NPT port
- **M** BSPP ports
- **A** BSPT ports

I/O BLOCK
- **E15** 15 Pin I/O Block with D-Sub Connector and User Plug, without Cable
- **G15*** 15 Pin I/O Block Non-Recessed, with D-Sub Connector and User Plug, without Cable
- **E12** 12 Pin I/O Block w/Turck M12 Conn, w/o Cordset
- **0** without I/O Block

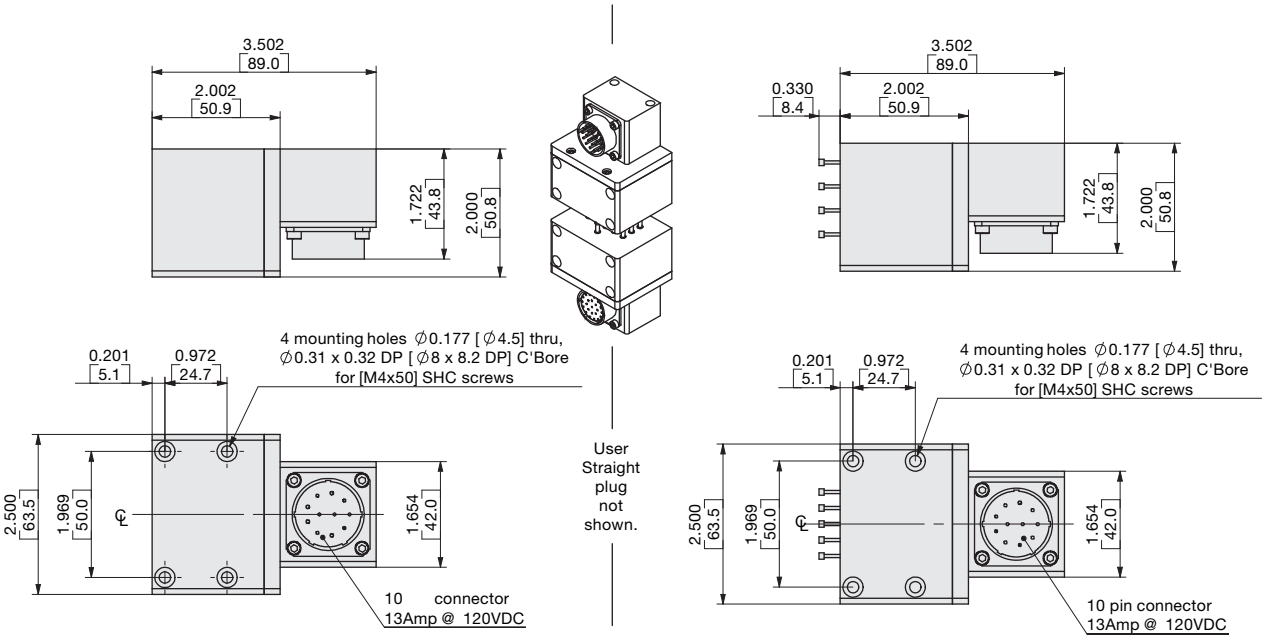
*For previous installations only. New Installations use E15.

MODULE:
- **E26** 26 pin, 5A Module w/Ind. User Connector
- **E19** 19 pin, 5A Module w/Ind. User Connector
- **E10** 10 pin, 13A Module w/Ind. User Connector
- **PN18** 4X 1/8" NPT Pneumatic Ports, 10 bar
- **PP18** 4X 1/8" BSPP Pneumatic Ports, 10 bar
- **PT18** 4X 1/8" BSPT Pneumatic Ports, 10 bar
- **PN14** 2X 1/4" NPT Pneumatic Ports, 10 bar
- **PP14** 2X 1/4" BSPP Pneumatic Ports, 10 bar
- **PT14** 2X 1/4" BSPT Pneumatic Ports, 10 bar
- **HN38** 2X 3/8" NPT Fluid Ports, 100 bar

REPLACEMENT I/O MODULE ACCESSORIES	ORDER #	QTY/UNIT
15 Pin I/O Block with D-Sub Connector and User Plug, w/o Cable	**KE15-TP60**	**1**
15 Pin I/O Block Non-Recessed, w/D-Sub Connector, User Plug, w/o Cable	**KG15-TP60**	**1**
12 Pin I/O Block with Turck M12 Connector, w/o Cordset	**KE12-TP60**	**1**
Straight Female D-Sub User Plug, w/o Cable, Solder Type for E15/G15	**ELCT-047**	**1**
90° Male Cordset 2M for E12	**CABL-023**	**1**

10 Pin Module 13Amp @ 120VDC (E10)

For QC/TP-60 & QC/TP-150



Flat for module mounting not shown: See QC or TP dawings.

ROBOT HALF MODULES:

How to Order Modules:

BASIC MODEL - PORT - SENSING

QC - 150 - A - E15 - LP - **E10**

SIZE - I/O BLOCK - MODULE

MODULE FOR QC-60

PREMOUNTED	SEPARATE	
E10	**KE10-QC60**	10 pin 13A Module with Industrial User Connector, without Cable

MODULE FOR QC-150

PREMOUNTED	SEPARATE	
E10	**KE10-QC150**	10 pin 13A Module with Industrial User Connector, without Cable

ACCESSORIES:

	ELCT-041	Straight female plug (w/o cable), solder type, cable clamp

TOOL HALF MODULES:

How to Order Modules:

BASIC MODEL - PORT - MODULE

TP - 150 - A - E15 - **E10**

SIZE - I/O BLOCK

MODULE FOR TP-60

PREMOUNTED	SEPARATE	
E10	**KE10-TP60**	10 pin 13A Module with Industrial User Connector, without Cable

MODULE FOR TP-150

PREMOUNTED	SEPARATE	
E10	**KE10-TP150**	10 pin 13A Module with Industrial User Connector, without Cable

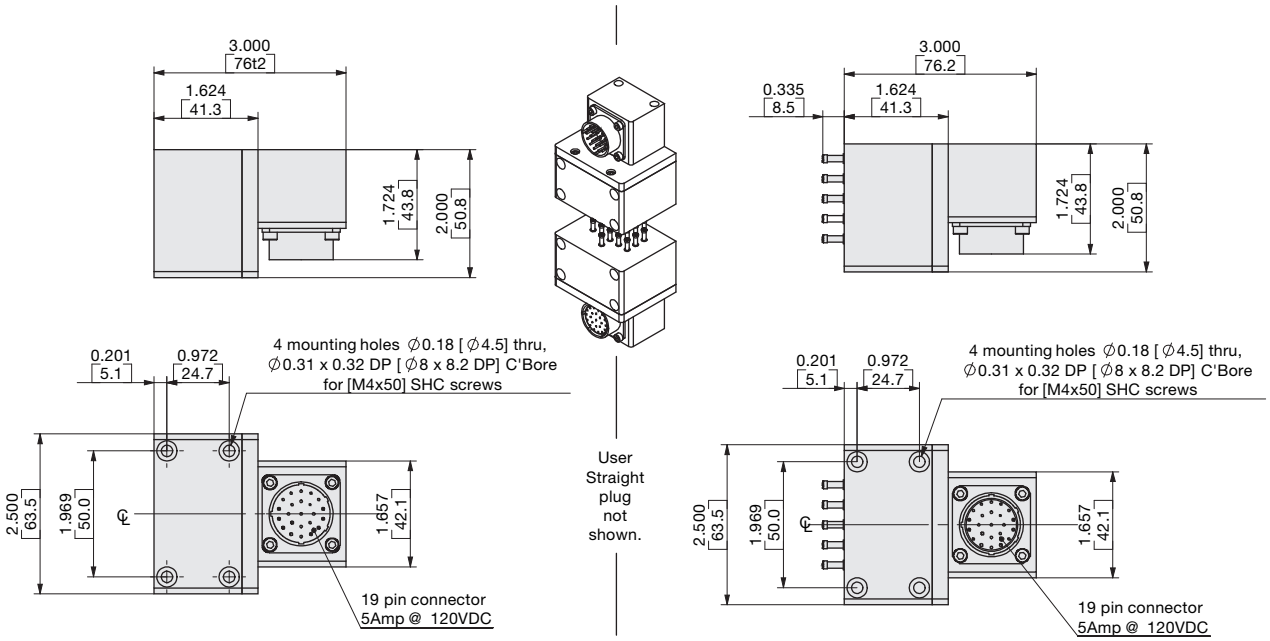
ACCESSORIES:

	ELCT-042	Straight male plug (w/o cable), solder type, cable clamp

Module kits above include: Flat for module mounting, straight plug (without cable), locating pins and hardware.

19 Pin Module 5Amp @ 120VDC (E19)

For QC/TP-60 & QC/TP-150



Flat for module mounting not shown: See QC or TP dawings.

ROBOT HALF MODULES:

How to Order Modules:

BASIC MODEL | PORT | MODULE

QC - 60 M - E15 - **E19**

SIZE | I/O BLOCK

MODULE FOR QC-60

PREMOUNTED	SEPARATE	
E19	**KE19-QC60**	19 pin 5A Module with Industrial User Connector, without Cable

MODULE FOR QC-150

PREMOUNTED	SEPARATE	
E19	**KE19-QC150**	19 pin 5A Module with Industrial User Connector, without Cable

ACCESSORIES:

	ELCT-043	Straight female plug (w/o cable), solder type, cable clamp

TOOL HALF MODULES:

How to Order Modules:

BASIC MODEL | PORT | MODULE

TP - 60 M - E15 - **E19**

SIZE | I/O BLOCK

MODULE FOR TP-60

PREMOUNTED	SEPARATE	
E19	**KE19-TP60**	19 pin 5A Module with Industrial User Connector, without Cable

MODULE FOR TP-150

PREMOUNTED	SEPARATE	
E19	**KE19-TP150**	19 pin 5A Module with Industrial User Connector, without Cable

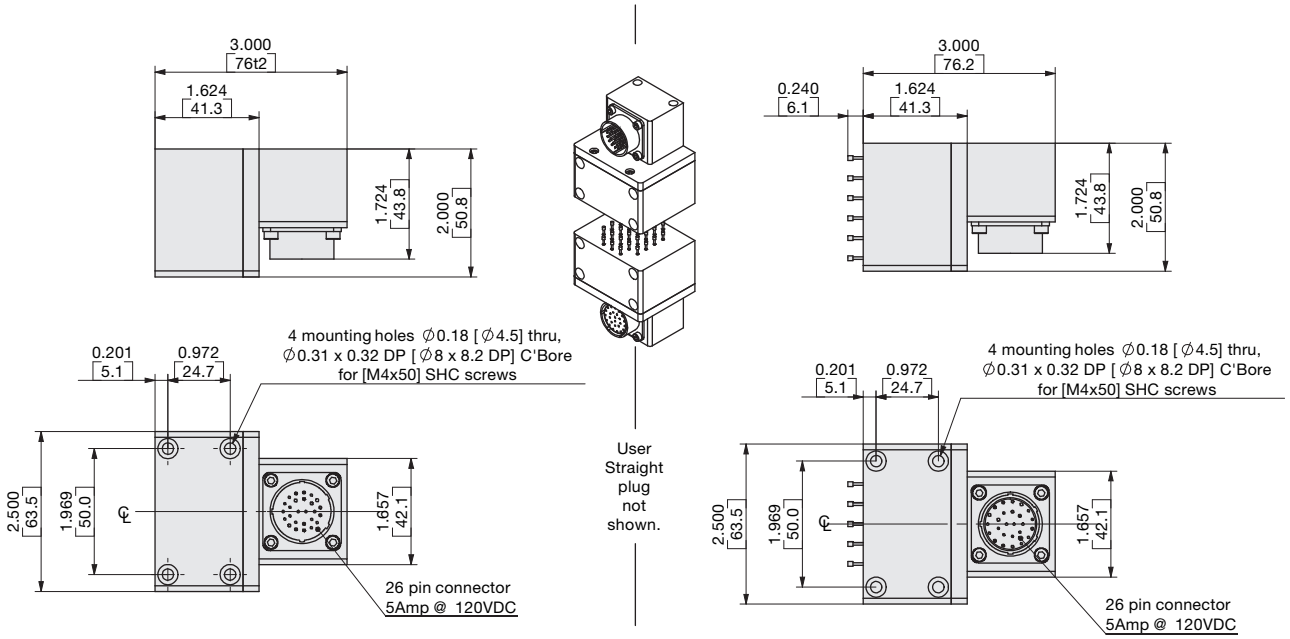
ACCESSORIES:

	ELCT-044	Straight male plug (w/o cable), solder type, cable clamp

Module kits above include: Flat for module mounting, straight plug (without cable), locating pins and hardware.

26 Pin Module 5Amp @ 120VDC (E26)

For QC/TP-60 & QC/TP-150



Flat for module mounting not shown: See QC or TP dawings.

ROBOT HALF MODULES:

How to Order Modules:

BASIC MODEL · PORT · MODULE

QC - 60 M - E15 - **E26**

SIZE · I/O BLOCK

MODULE FOR QC-60

PREMOUNTED	SEPARATE	
E26	**KE26-QC60**	26 pin 5A Module with Industrial User Connector, without Cable

MODULE FOR QC-150

PREMOUNTED	SEPARATE	
E26	**KE26-QC150**	26 pin 5A Module with Industrial User Connector, without Cable

ACCESSORIES:

	ELCT-045	Straight female plug (w/o cable), solder type, cable clamp

TOOL HALF MODULES:

How to Order Modules:

BASIC MODEL · PORT · MODULE

TP - 60 M - E15 - **E26**

SIZE · I/O BLOCK

MODULE FOR TP-60

PREMOUNTED	SEPARATE	
E26	**KE26-TP60**	26 pin 5A Module with Industrial User Connector, without Cable

MODULE FOR TP-150

PREMOUNTED	SEPARATE	
E26	**KE26-TP150**	26 pin 5A Module with Industrial User Connector, without Cable

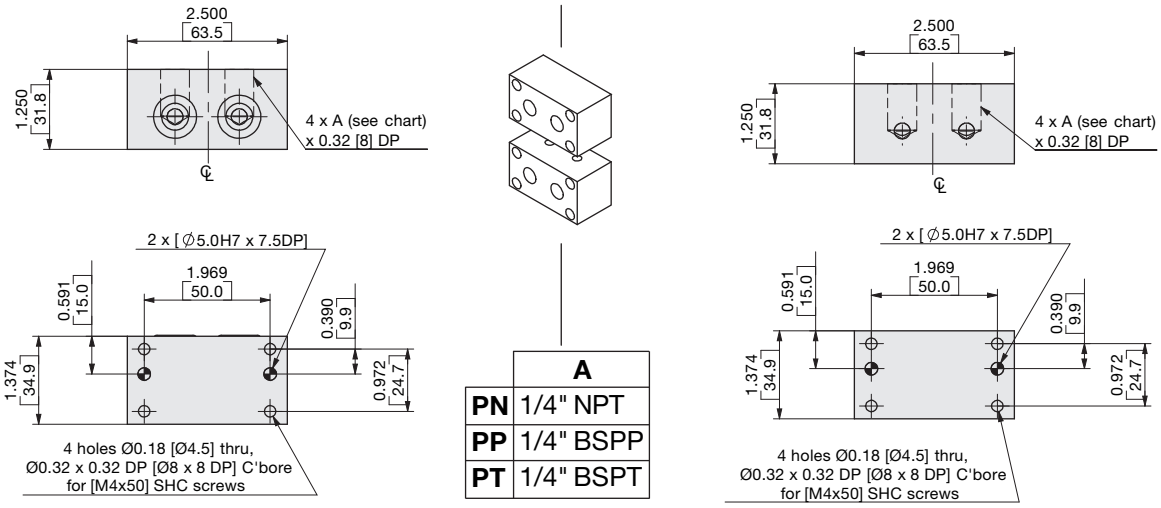
ACCESSORIES:

	ELCT-046	Straight male plug (w/o cable), solder type, cable clamp

Module kits above include: Flat for module mounting, straight plug (without cable), locating pins and hardware.

2 X 1/4" Air ports Module, Face Seal (PN14, PP14, PT14)

For QC/TP-60 & QC/TP-150



	A
PN	1/4" NPT
PP	1/4" BSPP
PT	1/4" BSPT

Flat for module mounting not shown: See QC or TP dawings.

Maximum Working Pressure: 10 bar

ROBOT HALF MODULES:

How to Order Modules:

BASIC MODEL - PORT - MODULE

QC - 60 [ ] - E15 - **PN14**

SIZE — I/O BLOCK

MODULES FOR QC-60

PREMOUNTED	SEPARATE	
PN14	**KPN14-QC60**	2 x 1/4" NPT Pneumatic Ports, 10 bar
PP14	**KPP14-QC60**	2 x 1/4" BSPP Pneumatic Ports, 10 bar
PT14	**KPT14-QC60**	2 x 1/4" BSPT Pneumatic Ports, 10 bar

MODULES FOR QC-150

PREMOUNTED	SEPARATE	
PN14	**KPN14-QC150**	2 x 1/4" NPT Pneumatic Ports, 10 bar
PP14	**KPP14-QC150**	2 x 1/4" BSPP Pneumatic Ports, 10 bar
PT14	**KPT14-QC150**	2 x 1/4" BSPT Pneumatic Ports, 10 bar

ACCESSORIES:

	SLKT-395	Seal Repair Kit

Module kits above include: Flat for module mounting, seals, locating pins and hardware.

TOOL HALF MODULES:

How to Order Modules:

BASIC MODEL - PORT - MODULE

TP - 60 [ ] - E15 - **PN14**

SIZE — I/O BLOCK

MODULES FOR TP-60

PREMOUNTED	SEPARATE	
PN14	**KPN14-TP60**	2 x 1/4" NPT Pneumatic Ports, 10 bar
PP14	**KPP14-TP60**	2 x 1/4" BSPP Pneumatic Ports, 10 bar
PT14	**KPT14-TP60**	2 x 1/4" BSPT Pneumatic Ports, 10 bar

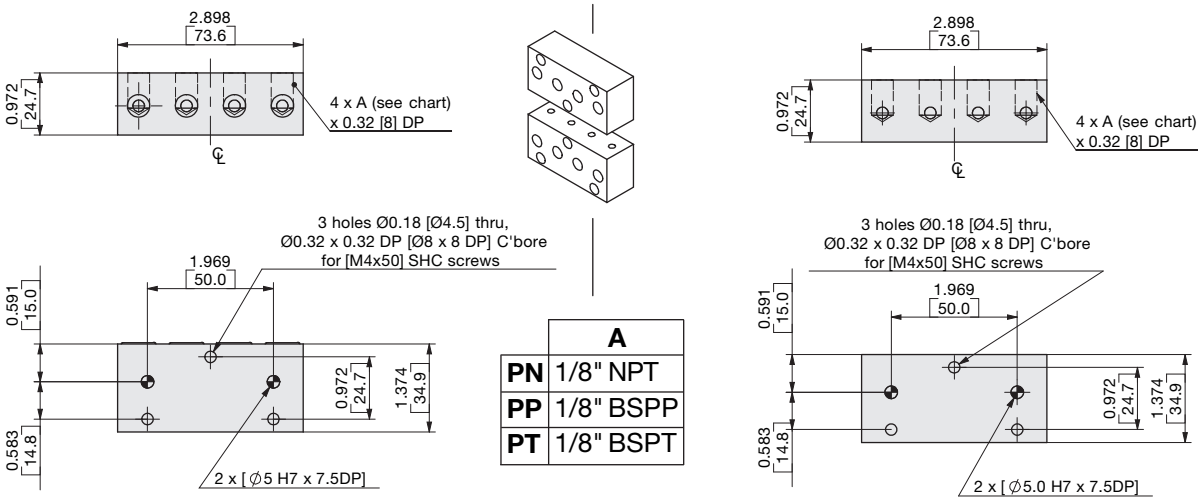
MODULES FOR TP-150

PREMOUNTED	SEPARATE	
PN14	**KPN14-TP150**	2 x 1/4" NPT Pneumatic Ports, 10 bar
PP14	**KPP14-TP150**	2 x 1/4" BSPP Pneumatic Ports, 10 bar
PT14	**KPT14-TP150**	2 x 1/4" BSPT Pneumatic Ports, 10 bar

Module kits above include: Flat for module mounting, straight plug (without cable), locating pins and hardware.

4 X 1/8" Air ports Module, Face Seal (PN18, PP18, PT18)

For QC/TP-60 & QC/TP-150



	A
PN	1/8" NPT
PP	1/8" BSPP
PT	1/8" BSPT

Flat for module mounting not shown: See QC or TP dawings.

Maximum Working Pressure: 10 bar

ROBOT HALF MODULES:

How to Order Modules:

BASIC MODEL - SIZE | PORT | MODULE - I/O BLOCK

QC - 60 | M | E15 - **PP18**

MODULES FOR QC-60

PREMOUNTED	SEPARATE	
PN18	KPN18-QC60	4 x 1/8" NPT Pneumatic Ports, 10 bar
PP18	KPP18-QC60	4 x 1/8" BSPP Pneumatic Ports, 10 bar
PT18	KPT18-QC60	4 x 1/8" BSPT Pneumatic Ports, 10 bar

MODULES FOR QC-150

PREMOUNTED	SEPARATE	
PN18	KPN18-QC150	4 x 1/8" NPT Pneumatic Ports, 10 bar
PP18	KPP18-QC150	4 x 1/8" BSPP Pneumatic Ports, 10 bar
PT18	KPT18-QC150	4 x 1/8" BSPT Pneumatic Ports, 10 bar

ACCESSORIES:

	SLKT-391	Seal Repair Kit

TOOL HALF MODULES:

How to Order Modules:

BASIC MODEL - SIZE | PORT | MODULE - I/O BLOCK

TP - 60 | M | E15 - **PP18**

MODULES FOR TP-60

PREMOUNTED	SEPARATE	
PN18	KPN18-TP60	4 x 1/8" NPT Pneumatic Ports, 10 bar
PP18	KPP18-TP60	4 x 1/8" BSPP Pneumatic Ports, 10 bar
PT18	KPT18-TP60	4 x 1/8" BSPT Pneumatic Ports, 10 bar

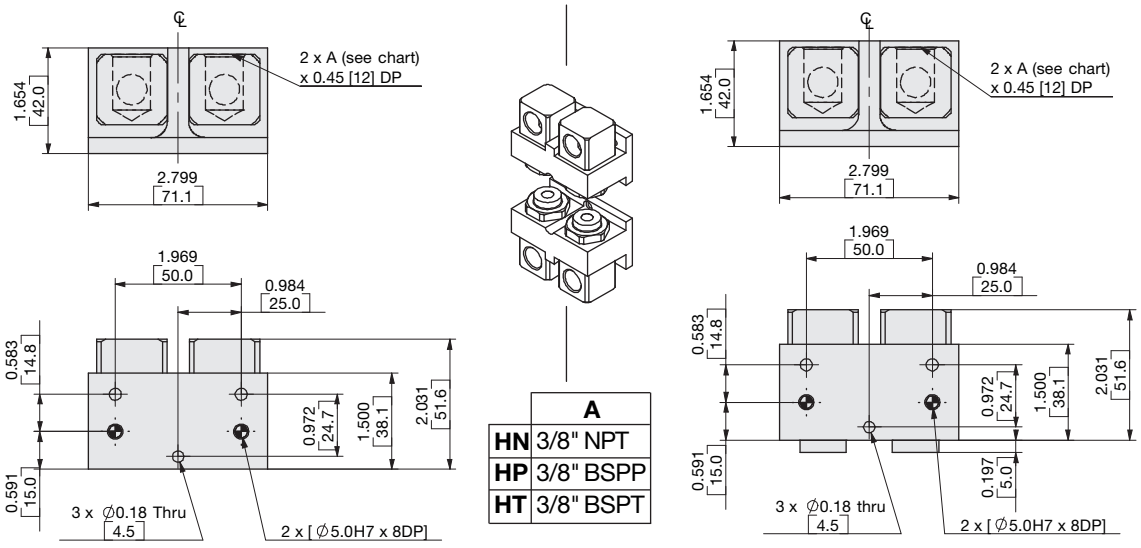
MODULES FOR TP-150

PREMOUNTED	SEPARATE	
PN18	KPN18-TP150	4 x 1/8" NPT Pneumatic Ports, 10 bar
PP18	KPP18-TP150	4 x 1/8" BSPP Pneumatic Ports, 10 bar
PT18	KPT18-TP150	4 x 1/8" BSPT Pneumatic Ports, 10 bar

Module kits above include: Flat for module mounting, seals, locating pins and hardware.

2 x 3/8" Fluid Ports Module, Non Spilling, Double Shut-Off (HP38, HN38, HT38)

For QC/TP-60 & QC/TP-150



	A
HN	3/8" NPT
HP	3/8" BSPP
HT	3/8" BSPT

Flat for module mounting not shown: See QC or TP dawings.

Maximum Working Pressure: 100 bar

ROBOT HALF MODULES:

How to Order Modules:

BASIC MODEL - PORT - SENSING

QC - 150 - A - E12 - LN - **HN38**

SIZE - I/O BLOCK - MODULE

MODULE FOR QC-60

PREMOUNTED	SEPARATE	
HN38	KHN38-QC60	2 x 3/8" NPT Fluid Ports Module, 100 bar

MODULE FOR QC-150

PREMOUNTED	SEPARATE	
HN38	KHN38-QC150	2 x 3/8" NPT Fluid Ports Module, 100 bar

TOOL HALF MODULES:

How to Order Modules:

BASIC MODEL - PORT - MODULE

TP - 150 - A - E12 - **HN38**

SIZE - I/O BLOCK

MODULE FOR TP-60

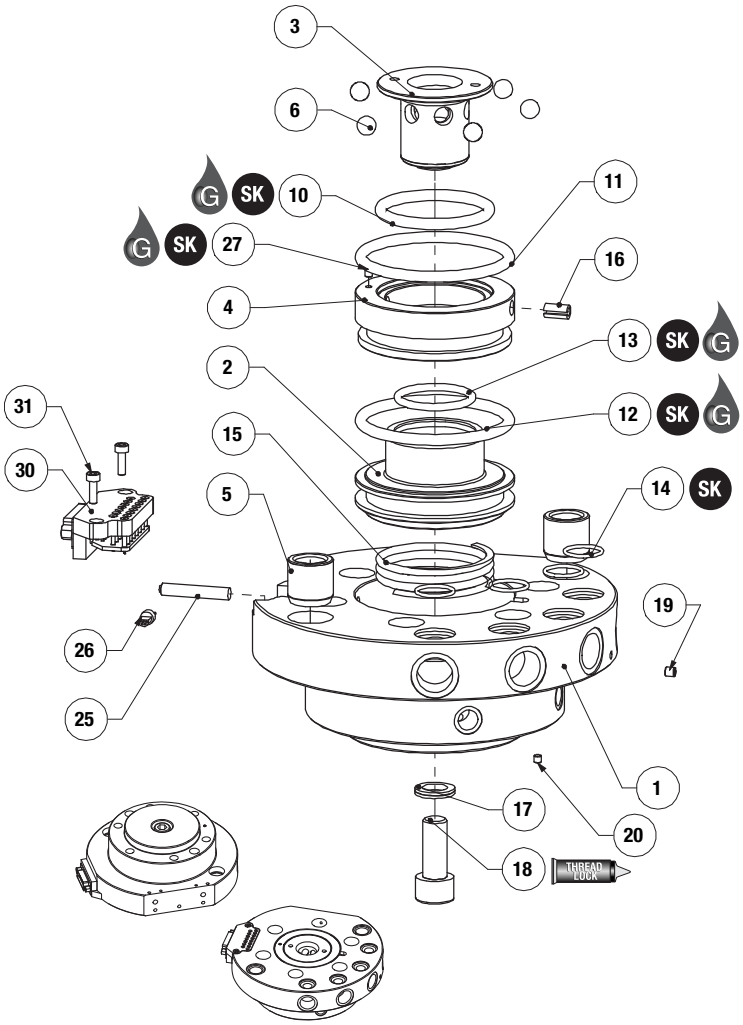
PREMOUNTED	SEPARATE	
HN38	KHN38-TP60	2 x 3/8" NPT Fluid Ports Module, 100 bar

MODULE FOR TP-150

PREMOUNTED	SEPARATE	
HN38	KHN38-TP150	2 x 3/8" NPT Fluid Ports Module, 100 bar

Module kits above include: Flat for module mounting, couplings, locating pins and hardware.

Robot Half

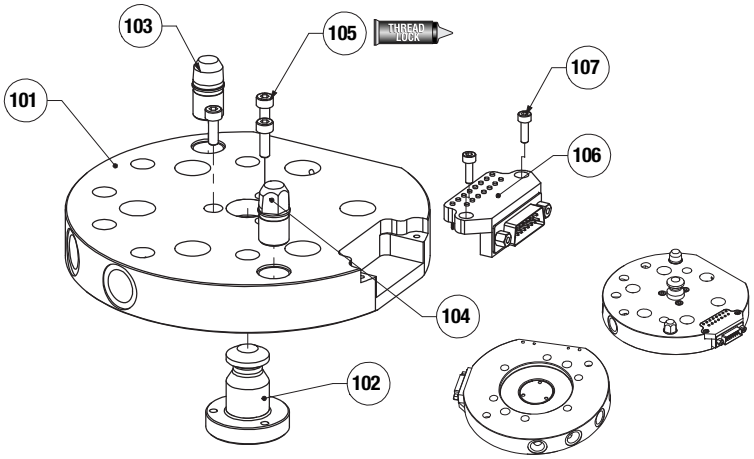


Item	Qty	Name
Robot Side		
1	1	Body
2	1	Piston
3	1	Ball retainer
4	1	Ring
5	2	Bushing
6	4 to 6	Ball
10	1	Ring, O-Ring
11	1	Ring, O-Ring
12	1	Piston, O-ring
13	1	Piston, O-ring
14	4	Body, O-Ring
15	1	Spring
16	1	Ring, Pin (QC-150 only)
17	1	Retainer, O-Ring
18	1	Retainer, Washer
19	1	Body, SHC screw
20	1	Body, SHC screw
25	1	Sensor, (QC-150 only - optional)
26	1	Sensor Connector, (QC-150 only - optional)
27	1	Sensor, SS screw (QC-150 only)
30	1	I/O Module
31	2	Module, SHC Screw
Tool Side		
101	1	Body
102	1	Locking Pin
103	1	Centering Pin
104	1	Diamond Pin
105	3	Pin, Screw
106	1	I/O Module
107	2	Module, SHC screw

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

SK Seal Repair Kit Order #'s See Product Data Sheets

Tool Half



SK Seal Kit Items

THREAD LOCK Thread Locker

KRYTOX Krytox™ Lubricant

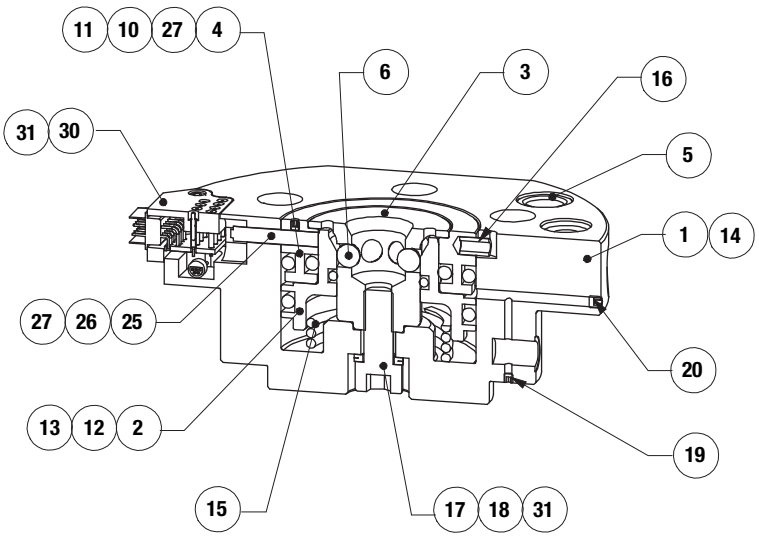
O Lightweight Machine Oil

G Teflon® Based Grease

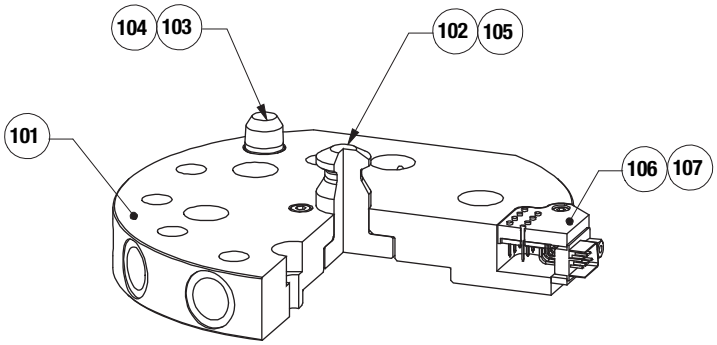
GLUE Super Bonder

Third Angle Projection

Robot Half



Tool Half



Item	Qty	Name
Robot Side		
1	1	Body
2	1	Piston
3	1	Ball retainer
4	1	Ring
5	2	Bushing
6	4 to 6	Ball
10	1	Ring, O-Ring
11	1	Ring, O-Ring
12	1	Piston, O-ring
13	1	Piston, O-ring
14	4	Body, O-Ring
15	1	Spring
16	1	Ring, Pin (QC-150 only)
17	1	Retainer, O-Ring
18	1	Retainer, Washer
19	1	Body, SHC screw
20	1	Body, SHC screw
25	1	Sensor, (QC-150 only - optional)
26	1	Sensor Connector, (QC-150 only - optional)
27	1	Sensor, SS screw (QC-150 only)
30	1	I/O Module
31	2	Module, SHC Screw
Tool Side		
101	1	Body
102	1	Locking Pin
103	1	Centering Pin
104	1	Diamond Pin
105	3	Pin, Screw
106	1	I/O Module
107	2	Module, SHC screw

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedure - Robot Side

1) Install the air port plugs (#19) and (#20) with thread-locker into the body (#1)
2) Lubricate and install seals (#12) and (#13) into the piston (#2)
3) Insert the springs (#15) into the body
4) Insert the piston sub-assembly into the body
5) Lubricate and install seals (#10) and (#11) into the ring (#4)
6) Insert the pin (#16) into the ring (#4)
7) Insert the ring sub-assembly into the body
8) Insert the balls (#6) into the ball retainer (#3)
9) Insert the ball and retainer sub-assembly into the body
10) Fasten the ball retainer with washer (#17) and screws (#18) with thread-locker
11) Press in the bushings (#5) into the body
12) Mount the O-Ring (#14) into the body
13) For QC150 with latch sensor only, fully insert the sensor (#25) into the body and slightly pull it back (0.5 to 1 mm). Fasten the sensor (#25) with screw (#27). Plug in male connector (#26) with the female connector of the I/O block (#30)
14) Mount the I/O block (#30) into the body and fasten with screw (#31)

Assembly Procedure - Tool Side

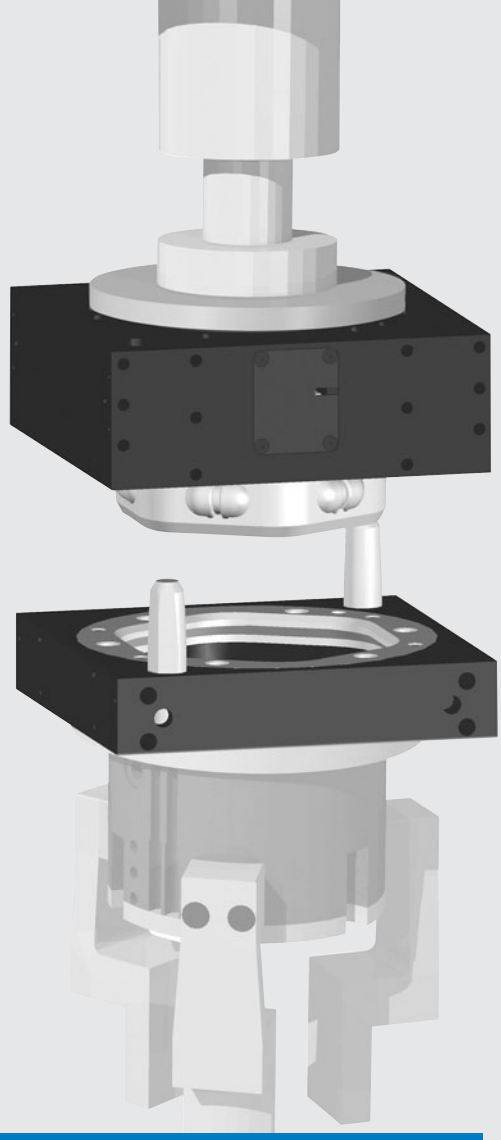
1) Insert the locking pin (#102) into the body #101 and fasten with screws (#105) with thread-locker
2) Press in the diamond pin (#104) into the body
3) Press in the pin (#103) into the body
4) Mount the I/O block (#106) into the body and fasten with screw (#107)

QC Series Cross Reference

New Product #	Old Product #	Description
Robot Half Size 30		
QC-30-E15	QC2336-0-0-0	Robot Half, Imperial, 15 Pin I/O Module
QC-30-D15	QC1862-0-0-0	Robot Half, Imperial, Double 15 Pin I/O Module
QC-30M-E15	QC1956-0-0-0	Robot Half, Metric, 15 Pin I/O Module
QC-30M-E12	QC7499-0-0-0	Robot Half, Metric, 12 Pin I/O Module
Tool Half Size 30		
TP-30-E15	TP2337-0-0	Tool Half, Imperial, 15 Pin I/O Module
TP-30-D15	TP1506-0-0	Tool Half, Imperial, Double 15 Pin I/O Module
TP-30M-E15	TP1957-0-0	Tool Half, Metric, 15 Pin I/O Module
TP-30M-E12	TP7500-0-0	Tool Half, Metric, 12 Pin I/O Module
Accessories Size 30		
E15-QC30	502678	15 Pin I/O Block with Micro D-Sub Connector
E12-QC30	507494	12 Pin I/O Block with Turck M12 Connector
E15-TP30	502679	15 Pin I/O Block with Micro D-Sub Connector
E12-TP30	507495	12 Pin I/O Block with Turck M12 Connector
CABL-024	903319	Straight Male Cordset 1.2M for E15
SLKT-387	KQC30-OR	Seal Repair Kit, QC30
SLKT-388	KQC30-HW	Face Sealing Repair Kit, QC30
Robot Half Size 60		
QC-60-E15	QC6675-0-0-0	Robot Half, NPT, 15 Pin I/O Module
QC-60-G15	QC2166-0-0-0	Robot Half, NPT, 15 Pin Non-Recessed I/O Module
QC-60M-E15	QC6704-0-0-0	Robot Half, Metric, 15 Pin I/O Module
QC-60M-E12	QC7592-0-0-0	Robot Half, Metric, 12 Pin I/O Module
QC-60M-G15	QC4588-0-0-0	Robot Half, Metric, 15 Pin Non-Recessed I/O Module
QC-60A-E15	QC6708-0-0-0	Robot Half, BSPT, 15 Pin I/O Module
QC-60A-G15	QC1980-0-0-0	Robot Half, BSPT, 15 Pin Non-Recessed I/O Module
QC-60-E15-10P	QC6923-0-0-0	Robot Half, NPT, 15 Pin I/O Module, 10 Ports
QC-60M-E15-10P	QC7079-0-0-0	Robot Half, Metric, 15 Pin I/O Module, 10 Ports
QC-60A-E15-10P	QC7078-0-0-0	Robot Half, BSPT, 15 Pin I/O Module, 10 Ports
Tool Half Size 60		
TP-60-E15	TP6676-0-0-0	Tool Half, NPT, 15 Pin I/O Module
TP-60-G15	TP2093-0-0-0	Tool Half, NPT, 15 Pin Non-Recessed I/O Module
TP-60M-E15	TP6705-0-0-0	Tool Half, Metric, 15 Pin I/O Module
TP-60M-E12	TP7593-0-0-0	Tool Half, Metric, 12 Pin I/O Module
TP-60M-G15	TP4591-0-0-0	Tool Half, Metric, 15 Pin Non-Recessed I/O Module
TP-60A-E15	TP6709-0-0-0	Tool Half, BSPT, 15 Pin I/O Module
TP-60A-G15	TP1981-0-0-0	Tool Half, BSPT, 15 Pin Non-Recessed I/O Module
TP-60-E15-10P	TP6924-0-0-0	Tool Half, NPT, 15 Pin I/O Module, 10 Ports
TP-60M-E15-10P	TP7081-0-0-0	Tool Half, Metric, 15 Pin I/O Module, 10 Ports
TP-60A-E15-10P	TP7080-0-0-0	Tool Half, BSPT, 15 Pin I/O Module, 10 Ports
Accessories Size 60		
SLKT-389	KQC60-OR	Seal Repair Kit, QC60
Robot Half Size 150		
QC-150-E15	QC6677-0-0-0	Robot Half, NPT, 15 Pin I/O Module
QC-150-G15	QC2292-0-0-0	Robot Half, NPT, 15 Pin Non-Recessed I/O Module
QC-150-E15-LP	QC6677-052-0-0	Robot Half, NPT, 15 Pin I/O Module, PNP Latch sensor
QC-150-G15-LP	QC2292-052-0-0	Robot Half, NPT, 15 Pin Non-Recessed I/O Module, PNP Latch sensor
QC-150-E15-LN	QC6677-050-0-0	Robot Half, NPT, 15 Pin I/O Module, NPN Latch sensor
QC-150-G15-LN	QC2292-050-0-0	Robot Half, NPT, 15 Pin Non-Recessed I/O Module, NPN Latch sensor
QC-150M-E15	QC6706-0-0-0	Robot Half, Metric, 15 Pin I/O Module
QC-150M-G15	QC4593-0-0-0	Robot Half, Metric, 15 Pin Non-Recessed I/O Module
QC-150M-E15-LP	QC6706-052-0-0	Robot Half, Metric, 15 Pin I/O Module, PNP Latch sensor
QC-150M-G15-LP	QC4593-052-0-0	Robot Half, Metric, 15 Pin Non-Recessed I/O Module, PNP Latch sensor
QC-150M-E15-LN	QC6706-050-0-0	Robot Half, Metric, 15 Pin I/O Module, NPN Latch sensor
QC-150M-G15-LN	QC4593-050-0-0	Robot Half, Metric, 15 Pin Non-Recessed I/O Module, NPN Latch sensor
QC-150A-E15	QC6710-0-0-0	Robot Half, BSPT, 15 Pin I/O Module
QC-150A-G15	QC3066-0-0-0	Robot Half, BSPT, 15 Pin Non-Recessed I/O Module
QC-150A-E15-LP	QC6710-052-0-0	Robot Half, BSPT, 15 Pin I/O Module, PNP Latch sensor
QC-150A-G15-LP	QC3066-052-0-0	Robot Half, BSPT, 15 Pin Non-Recessed I/O Module, PNP Latch sensor
QC-150A-E15-LN	QC6710-050-0-0	Robot Half, BSPT, 15 Pin I/O Module, NPN Latch sensor
QC-150A-G15-LN	QC3066-050-0-0	Robot Half, BSPT, 15 Pin Non-Recessed I/O Module, NPN Latch sensor

New Product #	Old Product #	Description
Tool Half Size 150		
TP-150-E15	TP6678-0-0-0	Tool Half, NPT, 15 Pin I/O Module
TP-150-G15	TP2293-0-0-0	Tool Half, NPT, 15 Pin Non-Recessed I/O Module
TP-150M-E15	TP6707-0-0-0	Tool Half, Metric, 15 Pin I/O Module
TP-150M-G15	TP4595-0-0-0	Tool Half, Metric, 15 Pin Non-Recessed I/O Module
TP-150A-E15	TP6711-0-0-0	Tool Half, BSPT, 15 Pin I/O Module
TP-150A-G15	TP2259-0-0-0	Tool Half, BSPT, 15 Pin Non-Recessed I/O Module
Modules Size 60 and 150		
KG15-QC60	502675	15 Pin I/O Block (Non-Recessed) with D-Sub Connector - QC side
KE15-QC60	506671	15 Pin I/O Block with D-Sub Connector - QC side
KG15-TP60	502676	15 Pin I/O Block (Non-Recessed) with D-Sub Connector - TP side
KE15-TP60	506673	15 Pin I/O Block with D-Sub Connector - TP side
KE26-QC60	QE26	26 pin 5A Module with Industrial Connector - QC side
KE26-TP60	TE26	26 pin 5A Module with Industrial Connector - TP side
KE19-QC60	QE19	19 pin 5A Module with Industrial Connector - QC side
KE19-TP60	TE19	19 pin 5A Module with Industrial Connector - TP side
KE10-QC60	QE10	10 pin 13A Module with Industrial Connector - QC side
KE10-TP60	TE10	10 pin 13A Module with Industrial Connector - TP side
KG15-QC150	502675	15 Pin I/O Block (Non-Recessed) with D-Sub Connector - QC side
KE15-QC150	506671	15 Pin I/O Block with D-Sub Connector - QC side
KE26-QC150	QE26	26 pin 5A Module with IndustrialConnector - QC side
KE26-TP150	TE26	26 pin 5A Module with Industrial Connector - TP side
KE19-QC150	QE19	19 pin 5A Module with Industrial Connector - QC side
KE19-TP150	TE19	19 pin 5A Module with Industrial Connector - TP side
KE10-QC150	QE10	10 pin 13A Module with Industrial Connector - QC side
KE10-TP150	TE10	10 pin 13A Module with Industrial Connector - TP side
KPN18-QC60	QNPT18	4 x 1/8 NPT Pneumatic Ports Module - QC side
KPP18-QC60	QBSPP18	4 x 1/8 BSPP Pneumatic Ports Module - QC side
KPT18-QC60	QBSPT18	4 x 1/8 BSPT Pneumatic Ports Module - QC side
KPN18-TP60	TNPT18	4 x 1/8 NPT Pneumatic Ports Module - TP side
KPP18-TP60	TBSPP18	4 x 1/8 BSPP Pneumatic Ports Module - TP side
KPT18-TP60	TBSPT18	4 x 1/8 BSPT Pneumatic Ports Module - TP side
KPN14-QC60	QNPT14	2 x 1/4 NPT Pneumatic Ports Module - QC side
KPP14-QC60	QBSPP14	2 x 1/4 BSPP Pneumatic Ports Module - QC side
KPT14-QC60	QBSPT14	2 x 1/4 BSPT Pneumatic Ports Module - QC side
KPN14-TP60	TNPT14	2 x 1/4 NPT Pneumatic Ports Module - TP side
KPP14-TP60	TBSPP14	2 x 1/4 BSPP Pneumatic Ports Module - TP side
KPT14-TP60	TBSPT14	2 x 1/4 BSPT Pneumatic Ports Module - TP side
KPN18-QC150	QNPT18	4 x 1/8 NPT Pneumatic Ports Module - QC side
KPP18-QC150	QBSPP18	4 x 1/8 BSPP Pneumatic Ports Module - QC side
KPT18-QC150	QBSPT18	4 x 1/8 BSPT Pneumatic Ports Module - QC side
KPN18-TP150	TNPT18	4 x 1/8 NPT Pneumatic Ports Module - TP side
KPP18-TP150	TBSPP18	4 x 1/8 BSPP Pneumatic Ports Module - TP side
KPT18-TP150	TBSPT18	4 x 1/8 BSPT Pneumatic Ports Module - TP side
KPN14-QC150	QNPT14	2 x 1/4 NPT Pneumatic Ports Module - QC side
KPP14-QC150	QBSPP14	2 x 1/4 BSPP Pneumatic Ports Module - QC side
KPT14-QC150	QBSPT14	2 x 1/4 BSPT Pneumatic Ports Module - QC side
KPN14-TP150	TNPT14	2 x 1/4 NPT Pneumatic Ports Module - TP side
KPP14-TP150	TBSPP14	2 x 1/4 BSPP Pneumatic Ports Module - TP side
KPT14-TP150	TBSPT14	2 x 1/4 BSPT Pneumatic Ports Module - TP side
KHN38-QC60	QQD38	2 x 3/8 NPT Fluid Ports Module - QC side
KHN38-TP60	TQD38	2 x 3/8 NPT Fluid Ports Module - TP side
KHN38-QC150	QQD38	2 x 3/8 NPT Fluid Ports Module - QC side
KHN38-TP150	TQD38	2 x 3/8 NPT Fluid Ports Module - TP side
ELCT-047	502363	Straight Female D-Sub User Plug (w/o cable) Solder Type for E15/G15 (QC-60/150 & TP-60/150)
ELCT-041	904831	Straight Female Plug (w/o cable) for E10-QC60/150
ELCT-042	904834	Straight Male Plug (w/o cable) for E10-TP60/150
ELCT-043	902484	Straight Female Plug (w/o cable) for E19-QC60/150
ELCT-044	902486	Straight Male Plug (w/o cable) for E19-TP60/150
ELCT-045	904837	Straight Female Plug (w/o cable) for E26-QC60/150
ELCT-046	904833	Straight Male Plug (w/o cable) for E26-TP60/150

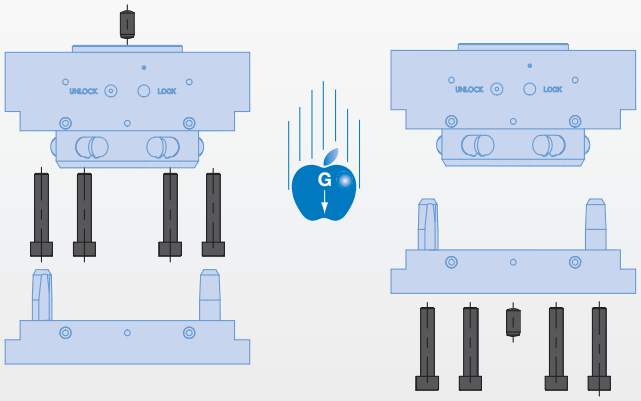
RQC Series Modular Tool Changer - High Loads



- **Robotic applications:** Perfect for those flexible/multiple tooling applications utilizing one Robot. This product was designed with exceptional repeatability, high rigidity & load capacity to make it ideal for any robotic application.
- **Automation applications:** End effector tooling and interchangeable fixturing can be changed quickly and easily to accommodate many different styles of parts on the same assembly machine or machining center.
- **Highly configurable, modular design:** The Modular RQC series easily accommodates up to 4 optional modular interfaces offering a high level of flexibility.

Mounting Information:

Robot half has counterbored holes for mounting with a dowel pin hole, a raised boss for location, and features a ISO9409-1 mounting pattern



Tool half has tapped holes, two dowel pin holes for accurate location of payload, and features a ISO9409-1 mounting pattern

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**60-100 psi**	**4-7 bar**
Cylinder Type	**Double Acting, Spring Assist**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-30°~180° F**	**-35°~80° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***†
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

†See Maintenance Section.
*Addition of lubrication will greatly increase service life

Application Restrictions
- Dirty or gritty environments
- Machining operations generating chips
- Environments with loose particulate

See Maintenance Section for:

Exploded views and spare parts list **7.52**
Drawing Sections and assembly procedures **7.53**
Tool Changer terminology **7.54**

Product Features

Optional Weld Gun Power Module
Size 800 & 1200 only

Latch/ Unlatch Switch
RQC's are pre-equipped for latch, unlatch (all sizes) and part presence sensing (sizes 800 & 1200 only). Dry contact or inductive sensors with or w/o connectors are available.

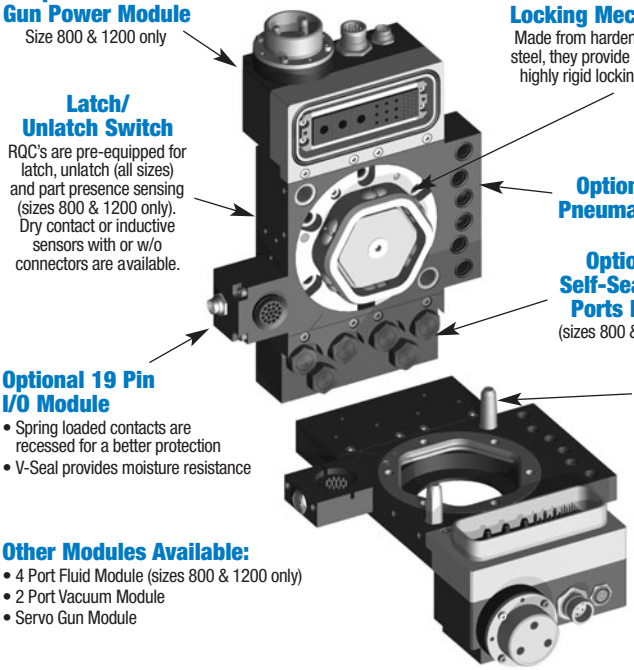
Optional 19 Pin I/O Module
- Spring loaded contacts are recessed for a better protection
- V-Seal provides moisture resistance

Locking Mechanisms
Made from hardened stainless steel, they provide a low stress, highly rigid locking capability

Optional 6 Port Pneumatic Module

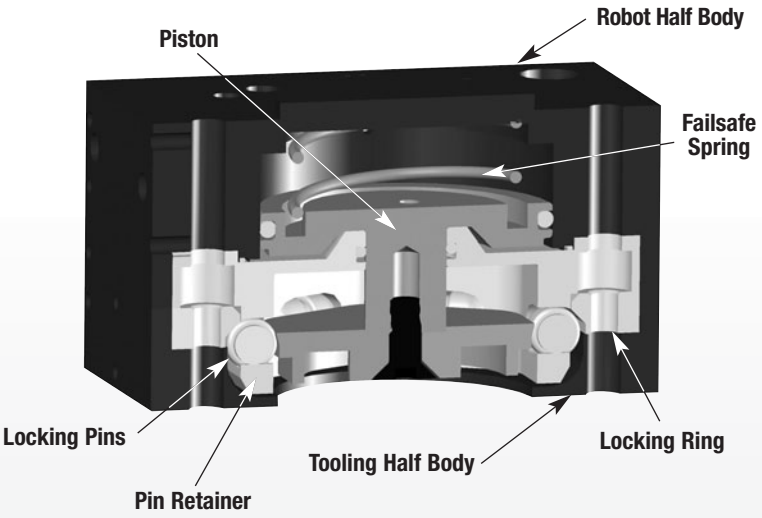
Optional 6 Self-Sealing Air Ports Module
(sizes 800 & 1200 only)

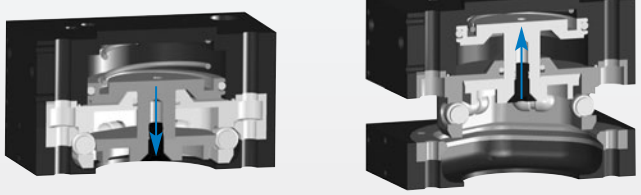
Locating Pins



Other Modules Available:
- 4 Port Fluid Module (sizes 800 & 1200 only)
- 2 Port Vacuum Module
- Servo Gun Module

Operating Principle



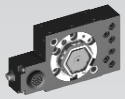


Locked Position | Unlocked Position

- The tool half is inserted into the robot half.
- The robot half has a spring assisted double acting piston. When the piston is actuated the locking pins are driven under the locking ring. Thus locking the halves together.
- The fail-safe spring maintains the piston position in the event of pressure loss and the connected units must receive air pressure to de-couple.

Style-RQC Robot Half

Size-200

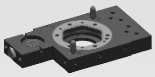


Style:	RQC-200	
Max. Payload:	200 lbs.	90 Kg
Max. Moment:	7200 in-lbs.	810 Nm
Weight:	4.7 lbs.	2.1 Kg

See Page 7.24

Style-RTP Tool Half

Size-200

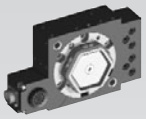


Style:	RTP-200	
Max. Payload:	200 lbs.	90 Kg
Max. Moment:	7200 in-lbs.	810 Nm
Weight:	2 lbs.	0.9 Kg

See Page 7.26

Style-RQC Robot Half

Size-400

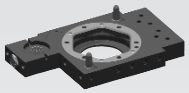


Style:	RQC-400	
Max. Payload:	400 lbs.	180 Kg
Max. Moment:	14000 in-lbs.	1580 Nm
Weight:	8 lbs.	3.6 Kg

See Page 7.28

Style-RTP Tool Half

Size-400

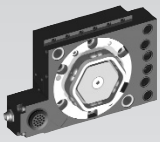


Style:	RTP-400	
Max. Payload:	400 lbs.	180 Kg
Max. Moment:	14000 in-lbs.	1580 Nm
Weight:	2.4 lbs.	1.1 Kg

See Page 7.30

Style-RQC Robot Half

Size-800

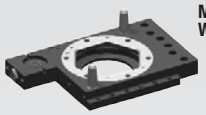


Style:	RQC-800	
Max. Payload:	800 lbs.	360 Kg
Max. Moment:	22000 in-lbs.	2490 Nm
Weight:	11.8 lbs.	5.3 Kg

See Page 7.32

Style-RTP Tool Half

Size-800

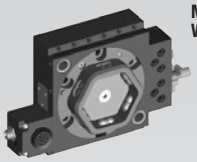


Style:	RTP-800	
Max. Payload:	800 lbs.	360 Kg
Max. Moment:	22000 in-lbs.	2490 Nm
Weight:	4 lbs.	1.8 Kg

See Page 7.34

Style-RQC Robot Half

Size-1200

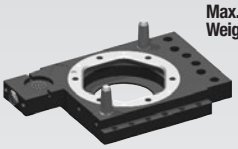


Style:	RQC-1200	
Max. Payload:	1200 lbs.	550 Kg
Max. Moment:	30000 in-lbs.	3390 Nm
Weight:	14.1 lbs.	6.4 Kg

See Page 7.36

Style-RTP Tool Half

Size-1200



Style:	RTP-1200	
Max. Payload:	1200 lbs.	550 Kg
Max. Moment:	30000 in-lbs.	3390 Nm
Weight:	4.3 lbs.	1.9 Kg

See Page 7.38

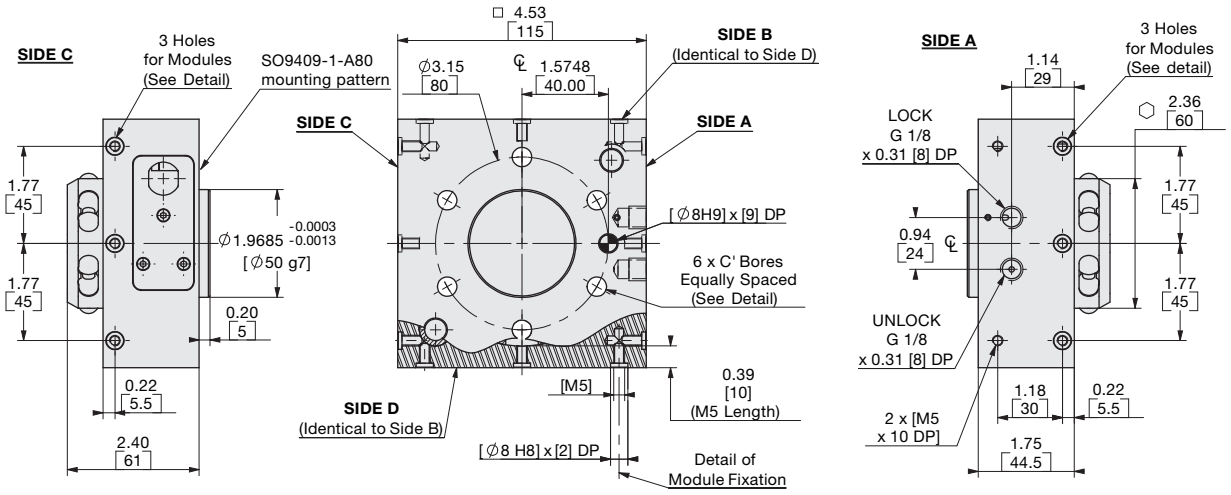
Options and Accessories

See Page 7.40

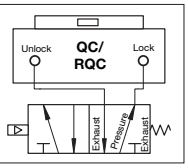
TOOL CHANGER RQC-200
ROBOT ADAPTER MODULE

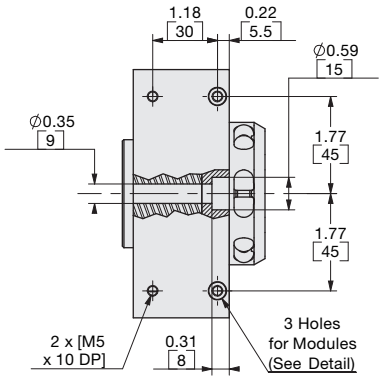
Robohand

Specifications		RQC-200
Maximum Payload	200 lbs	90 Kg
Maximum Moment	7,200 in-lbs	810 Nm
Weight of **RQC** Unit only	4.7 lb	2.1 Kg
Weight of Coupled Units	6.7 lbs	3 Kg
Pressure Range (locked cylinder)	60~100 psi	4~7 bar
Bore Ø	2.09 in.	53 mm
Displacement	2.52 in^3.	41.3 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	± 0.001 in.	±0.025 mm
Valve required to actuate	4-way, 2-position	



Failsafe operation:
4-way valves with a spring return are recommended to maintain air pressure to the lock port during emergency stop conditions.



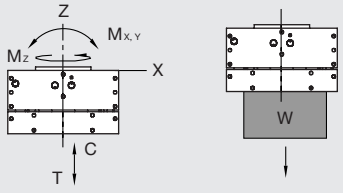


SIDE D
(Identical to Side B)

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information

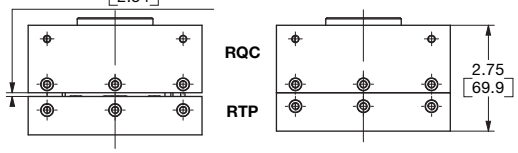


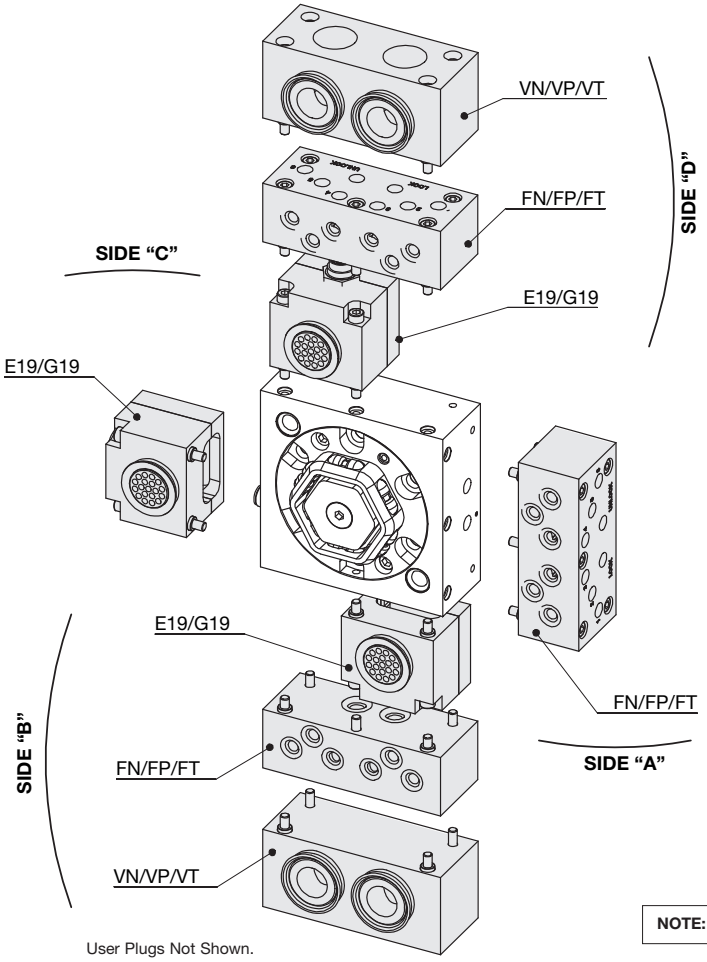
Loading Capacity	Imperial	Metric
Maximum Tensile **T**	300 lbs.	1330 N
Maximum Compressive **C**	400 lbs.	1780 N
Maximum Moment M_x	7200 in.- lbs.	810 Nm
Maximum Moment M_y	7200 in.- lbs.	810 Nm
Maximum Moment M_z	7200 in.- lbs.	810 Nm

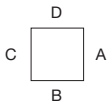
READY TO COUPLE POSITION

RQC can couple to RTP at up to a 0.10 [2.54] gap

COUPLED POSITION







User Plugs Not Shown.

NOTE: Only one module can be mounted per side.

How to Order: (Order Accessories separately from Basic Model)

For detailed sensing and module information see pages 8.40 - 8.51

BASIC MODEL		PORT		SIDE A		SIDE C	
RQC	200						
	SIZE		SENSING		SIDE B		SIDE D

PORT:

N	NPT port
M	BSPP ports
A	BSPT ports

SENSING (FOR LATCH AND UNLATCH):

LO	No sensing
LP*	PNP Inductive sensor
CP†	PNP Inductive sensor with M12 connector
LN*	NPN Inductive sensor
CN†	NPN Inductive sensor with M12 connector
LD*	Dry contact sensor
CD†	Dry contact sensor with M12 connector

*Requires E19 module or G19 module mounted on side C. †Cables are sold separately.

SIDE A:

0	No optional module
FN	6 x 1/8" NPT air ports module, face seal, 10 bar
FP	6 x 1/8" BSPP air ports module, face seal, 10 bar
FT	6 x 1/8" BSPT air ports module, face seal, 10 bar

SIDE B AND/OR D:

0	No optional module
E19†	19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
G19	19 pin, 5 Amp, 120 VDC Module w/Industrial User Connector, w/o Cable
FN	6 x 1/8" NPT air ports module, face seal, 10 bar
FP	6 x 1/8" BSPP air ports module, face seal, 10 bar
FT	6 x 1/8" BSPT air ports module, face seal, 10 bar
VN	2 x 3/4" NPT vacuum ports module, face seal
VP	2 x 3/4" BSPP vacuum ports module, face seal
VT	2 x 3/4" BSPT vacuum ports module, face seal

†Cordset or plug are sold separately.

SIDE C:

0	No optional module
E19† **	19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
G19 **	19 pin, 5 Amp, 120 VDC Module w/Industrial User Connector, w/o Cable

†Cordset or plug are sold separately. **Not compatible with CD, CP or CN sensing option.

PNEUMATIC ACCESSORIES:

SLKT-401	RQC-200 Standard Seal Repair Kit

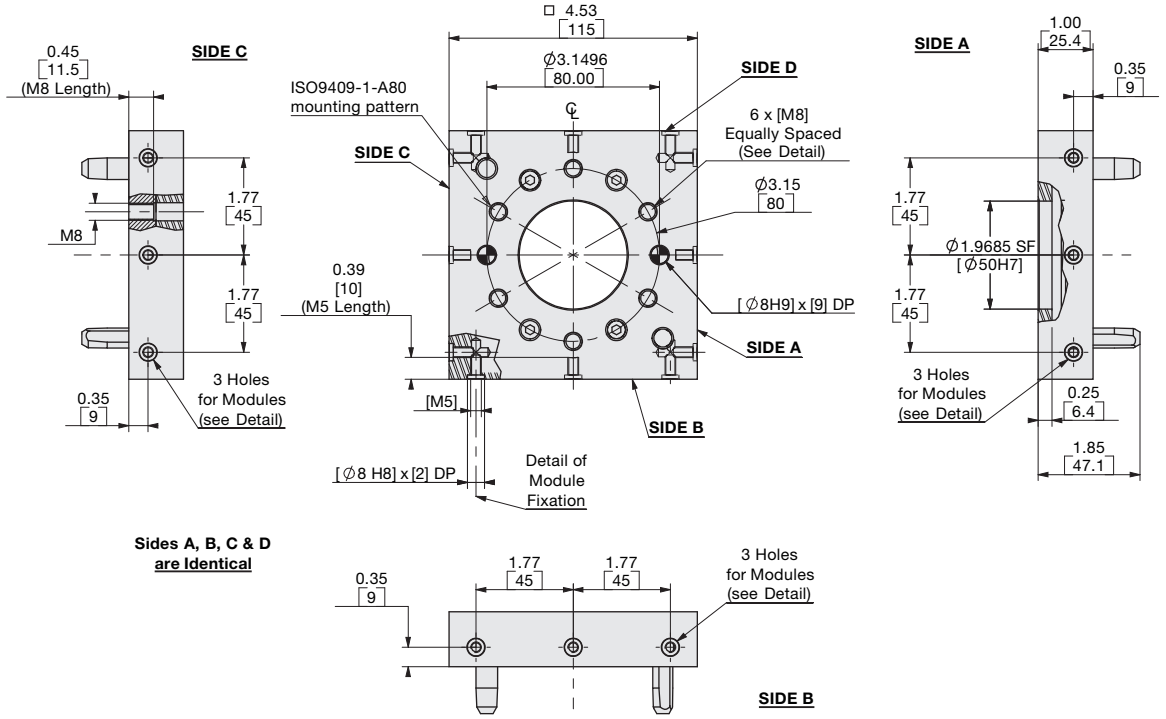
ELECTRICAL ACCESSORIES:

ELCT-048	90° Female Plug, w/o Cable, Solder Type, Cable Clamp for G19
CABL-028	90° Female M12 Cordset with 2M Cable for CP, CN, and CD
CABL-029	90° Female Cordset with 4M Cable for E19
OSRK-001	PNP Inductive Sensor Repair Kit
OSRK-002	NPN Inductive Sensor Repair Kit
OSRK-003	Dry Contact Sensor Repair Kit

TOOL CHANGER RTP-200
TOOL ADAPTER MODULE

Robohand

Specifications	RTP-200	
Maximum Payload	200 lbs	90 Kg
Maximum Moment	7,200 in-lbs	810 Nm
Weight of **RTP** Unit only	2 lb	0.9 Kg
Weight of Coupled Units	6.7 lbs	3 Kg
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	± 0.001 in.	±0.025 mm



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

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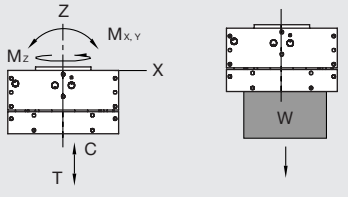
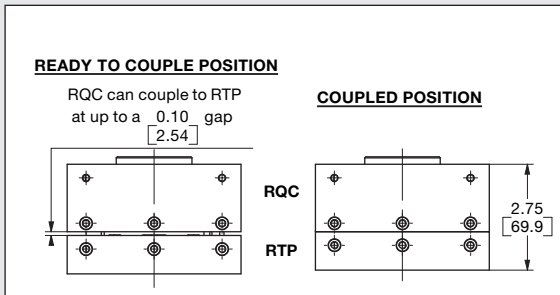
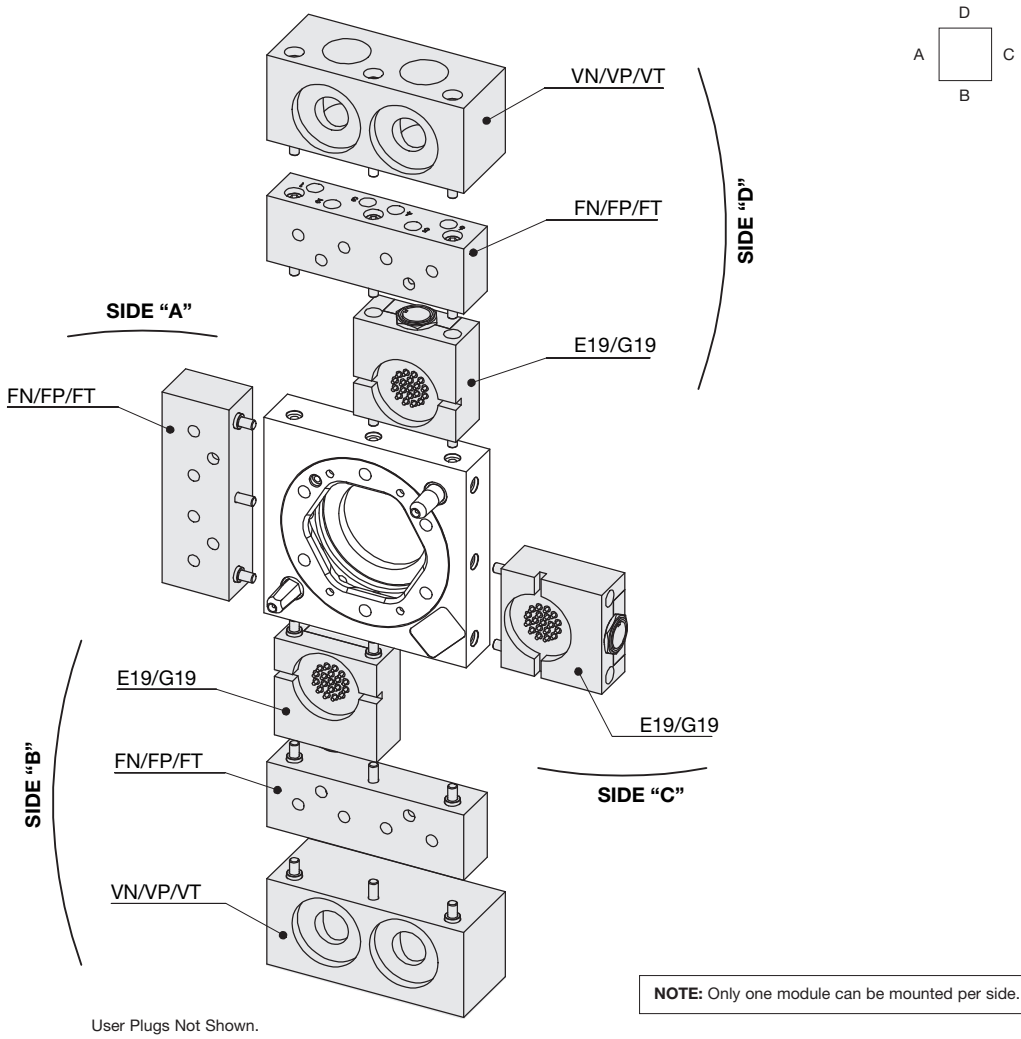


Loading Capacity

	Imperial	Metric
Maximum Tensile **T**	300 lbs.	1330 N
Maximum Compressive **C**	400 lbs.	1780 N
Maximum Moment M_x	7200 in.- lbs.	810 Nm
Maximum Moment M_y	7200 in.- lbs.	810 Nm
Maximum Moment M_z	7200 in.- lbs.	810 Nm





User Plugs Not Shown.

NOTE: Only one module can be mounted per side.

How to Order: (Order Accessories separately from Basic Model)

For detailed sensing and module information see pages 8.40 - 8.51

BASIC MODEL | SIDE A | SIDE C

RTP - 200 - ☐ - ☐ - ☐ - ☐

SIZE | SIDE B | SIDE D

SIDE A:

0	No optional module
FN	6 x 1/8" NPT air ports module, face seal, 10 bar
FP	6 x 1/8" BSPP air ports module, face seal, 10 bar
FT	6 x 1/8" BSPT air ports module, face seal, 10 bar

SIDE B AND/OR D:

0	No optional module
E19†	19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
G19	19 pin, 5 Amp, 120 VDC Module w/Industrial User Conn., w/o Cable
FN	6 x 1/8" NPT air ports module, face seal, 10 bar
FP	6 x 1/8" BSPP air ports module, face seal, 10 bar
FT	6 x 1/8" BSPT air ports module, face seal, 10 bar
VN	2 x 3/4" NPT vacuum ports module, face seal
VP	2 x 3/4" BSPP vacuum ports module, face seal
VT	2 x 3/4" BSPT vacuum ports module, face seal

†Cordset or plug are sold separa tely.

SIDE C:

0	No optional module
E19†	19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
G19	19 pin, 5 Amp, 120 VDC Module w/Industrial User Conn., w/o Cable

†Cordset or plug are sold separa tely. **Not compatible with CD, CP or CN sensing option.

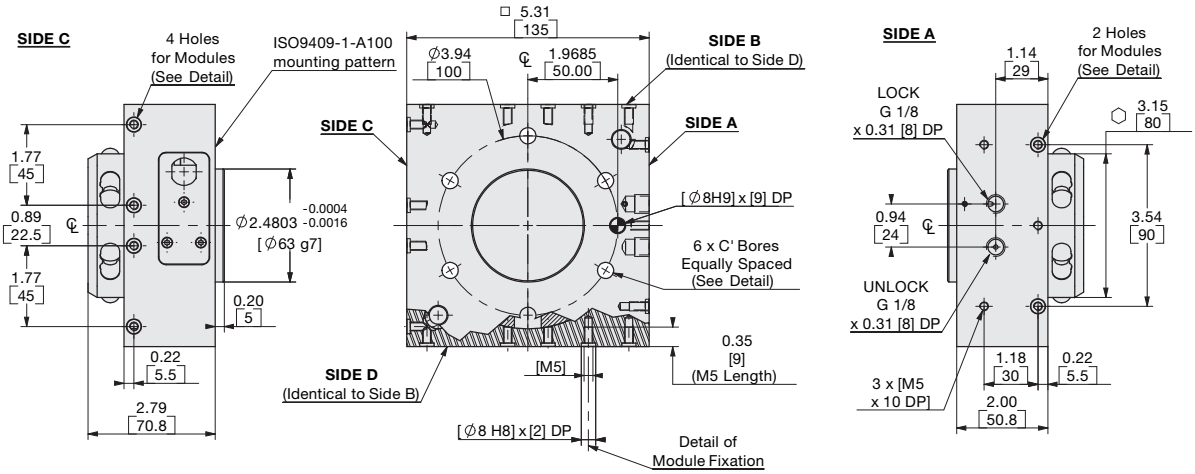
ELECTRICAL ACCESSORIES:

ELCT-049	90° Male Plug, w/o Cable, Solder Type, Cable Clamp for G19
CABL-031	90° Male Cordset with 2M Cable for E19

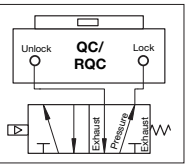
TOOL CHANGER RQC-400
ROBOT ADAPTER MODULE

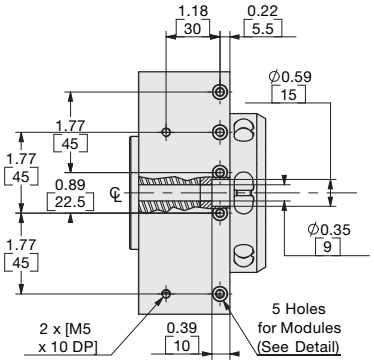
Robohand

Specifications		RQC-400
Maximum Payload	400 lbs	180 Kg
Maximum Moment	14,000 in-lbs	1580 Nm
Weight of **RQC** Unit only	8 lb	3.6 Kg
Weight of Coupled Units	10.4 lbs	4.7 Kg
Pressure Range (locked cylinder)	60~100 psi	4~7 bar
Bore Ø	2.87 in.	73 mm
Displacement	4.93 in^3.	80.9 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	± 0.001 in.	±0.025 mm
Valve required to actuate	4-way, 2-position	



Failsafe operation:
4-way valves with a spring return are recommended to maintain air pressure to the lock port during emergency stop conditions.





SIDE D
(Identical to Side B)

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

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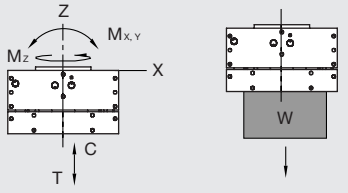
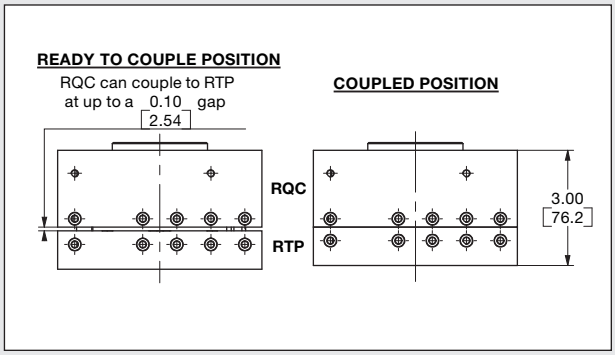
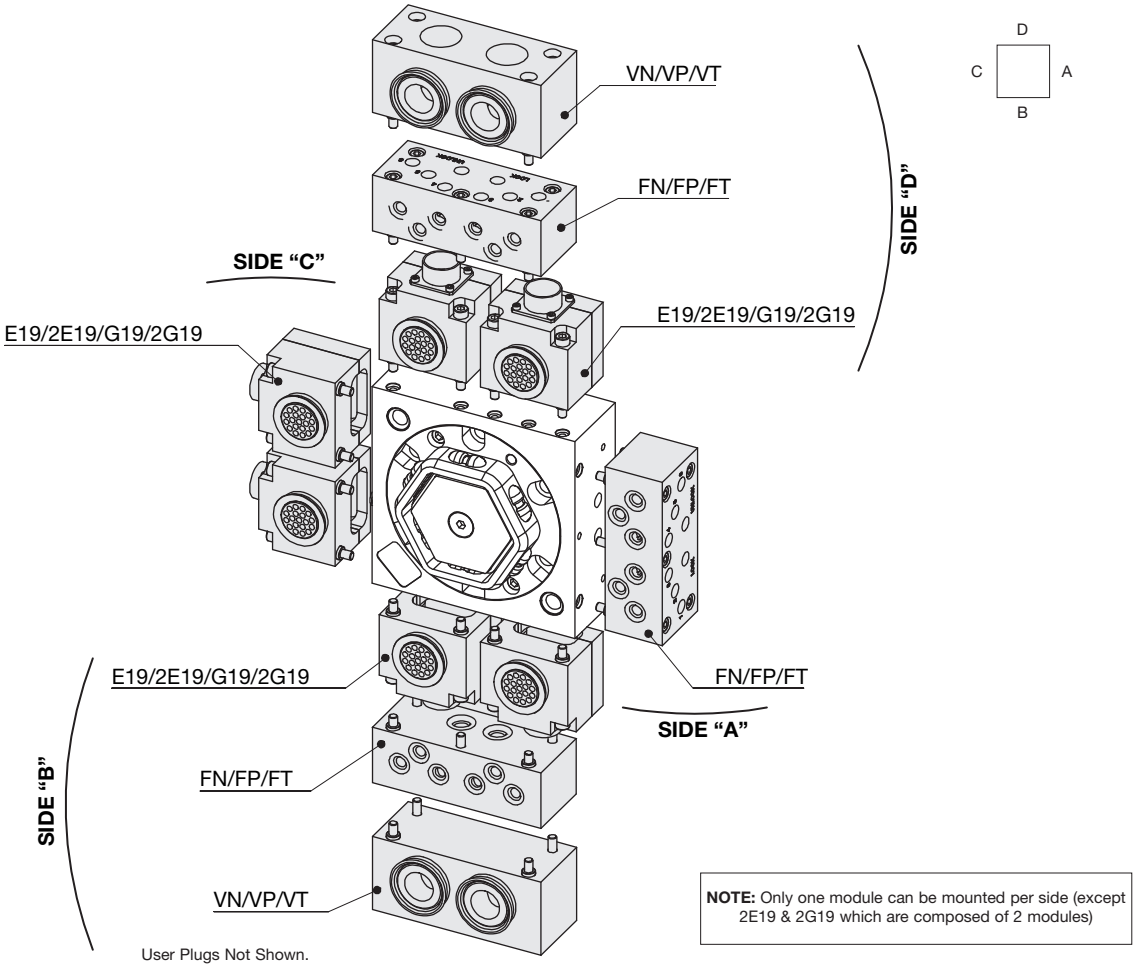


Loading Capacity

	Imperial	Metric
Maximum Tensile **T**	600 lbs.	2670 N
Maximum Compressive **C**	800 lbs.	3560 N
Maximum Moment **Mx**	14000 in.- lbs.	1580 Nm
Maximum Moment **My**	14000 in.- lbs.	1580 Nm
Maximum Moment **Mz**	14000 in.- lbs.	1580 Nm





NOTE: Only one module can be mounted per side (except 2E19 & 2G19 which are composed of 2 modules)

How to Order: (Order Accessories separately from Basic Model)

For detailed sensing and module information see pages 8.40 - 8.51

BASIC MODEL | PORT | SIDE A | SIDE C

RQC - 400 [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

SIZE | SENSING | SIDE B | SIDE D

PORT:

N	NPT port
M	BSPP ports
A	BSPT ports

SENSING (FOR LATCH AND UNLATCH):

LO	No sensing
LP*	PNP Inductive sensor
CP†	PNP Inductive sensor with M12 connector
LN*	NPN Inductive sensor
CN†	NPN Inductive sensor with M12 connector
LD*	Dry contact sensor
CD†	Dry contact sensor with M12 connector

*Requires E19 module or G19 module mounted on side C. †Cordset or plug are sold separately.

ELECTRICAL ACCESSORIES:

ELCT-048	90° Female Plug, w/o Cable, Solder Type, Cable Clamp for G19
CABL-028	90° Female M12 Cordset with 2M Cable for CP, CN, and CD
CABL-029	90° Female Cordset with 4M Cable for E19
OSRK-001	PNP Inductive Sensor Repair Kit
OSRK-002	NPN Inductive Sensor Repair Kit
OSRK-003	Dry Contact Sensor Repair Kit

SIDE A:

0	No optional module
FN	6 x 1/8" NPT air ports module, face seal, 10 bar
FP	6 x 1/8" BSPP air ports module, face seal, 10 bar
FT	6 x 1/8" BSPT air ports module, face seal, 10 bar

SIDE C:

0	No optional module
E19†	19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
2E19† **	2x 19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
G19	19 pin, 5 Amp, 120 VDC Module w/Industrial User Conn., w/o Cable
2G19**	2x 19 pin, 5 Amp, 120 VDC Module w/Industrial User Conn., w/o Cable

†Cordset or plug are sold separately. **Not compatible with CD, CP or CN sensing option.

SIDE B AND/OR D:

0	No optional module
E19†	19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
2E19†	2x 19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
G19	19 pin, 5 Amp, 120 VDC Module w/Industrial User Conn., w/o Cable
2G19	2x 19 pin, 5 Amp, 120 VDC Module w/Industrial User Conn., w/o Cable
FN	6 x 1/8" NPT air ports module, face seal, 10 bar
FP	6 x 1/8" BSPP air ports module, face seal, 10 bar
FT	6 x 1/8" BSPT air ports module, face seal, 10 bar
VN	2 x 3/4" NPT vacuum ports module, face seal
VP	2 x 3/4" BSPP vacuum ports module, face seal
VT	2 x 3/4" BSPT vacuum ports module, face seal

†Cordset or plug are sold separately.

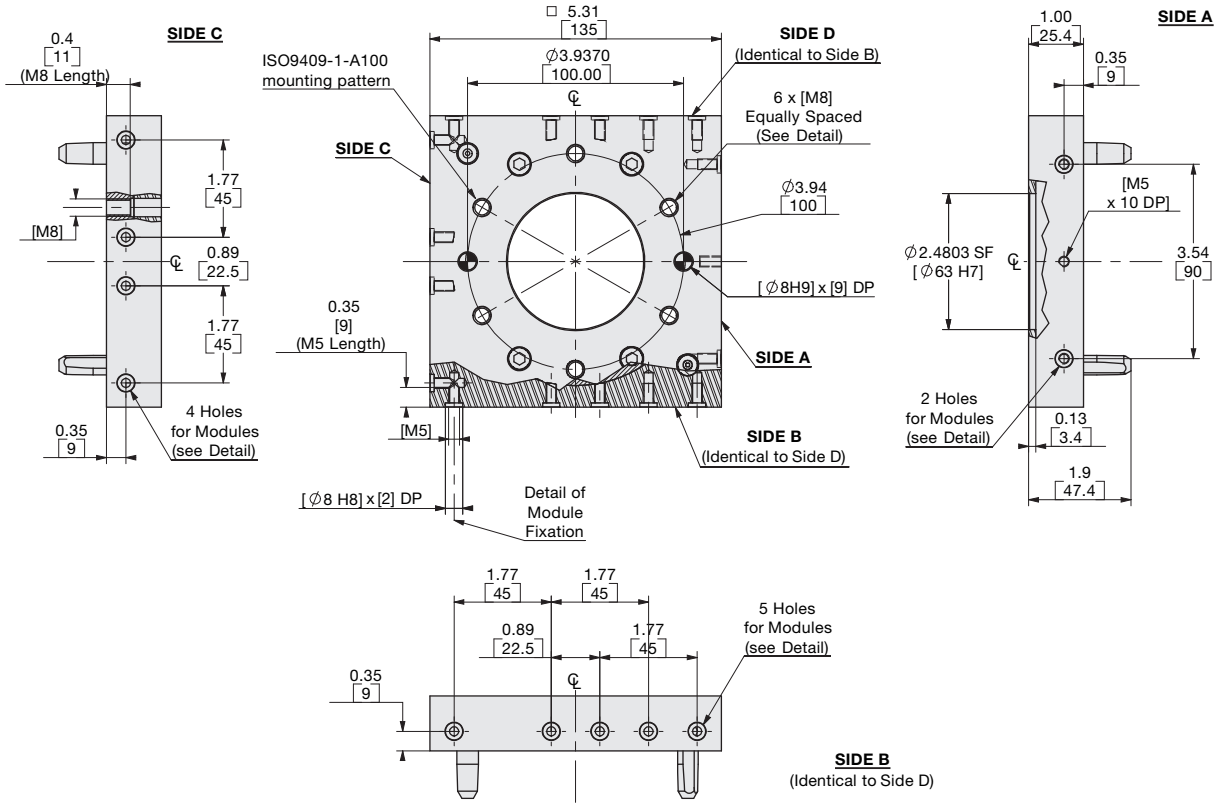
PNEUMATIC ACCESSORIES:

SLKT-402	RQC-400 Standard Seal Repair Kit

TOOL CHANGER RTP-400
TOOL ADAPTER MODULE

Robohand

Specifications		RTP-400
Maximum Payload	400 lbs	180 Kg
Maximum Moment	14,000 in-lbs	1580 Nm
Weight of **RTP** Unit only	2.4 lb	1.1 Kg
Weight of Coupled Units	10.4 lbs	4.7 Kg
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	± 0.001 in.	±0.025 mm



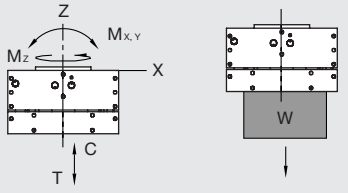
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

MODULAR RQC SERIES

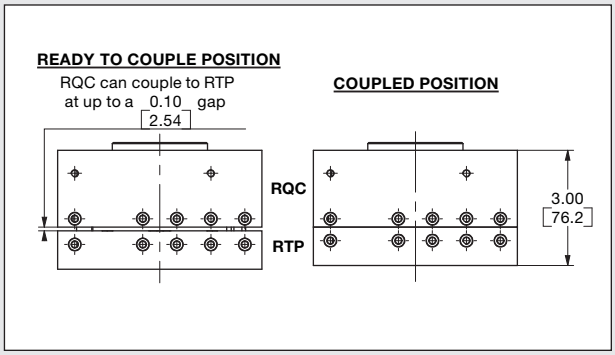
7.30

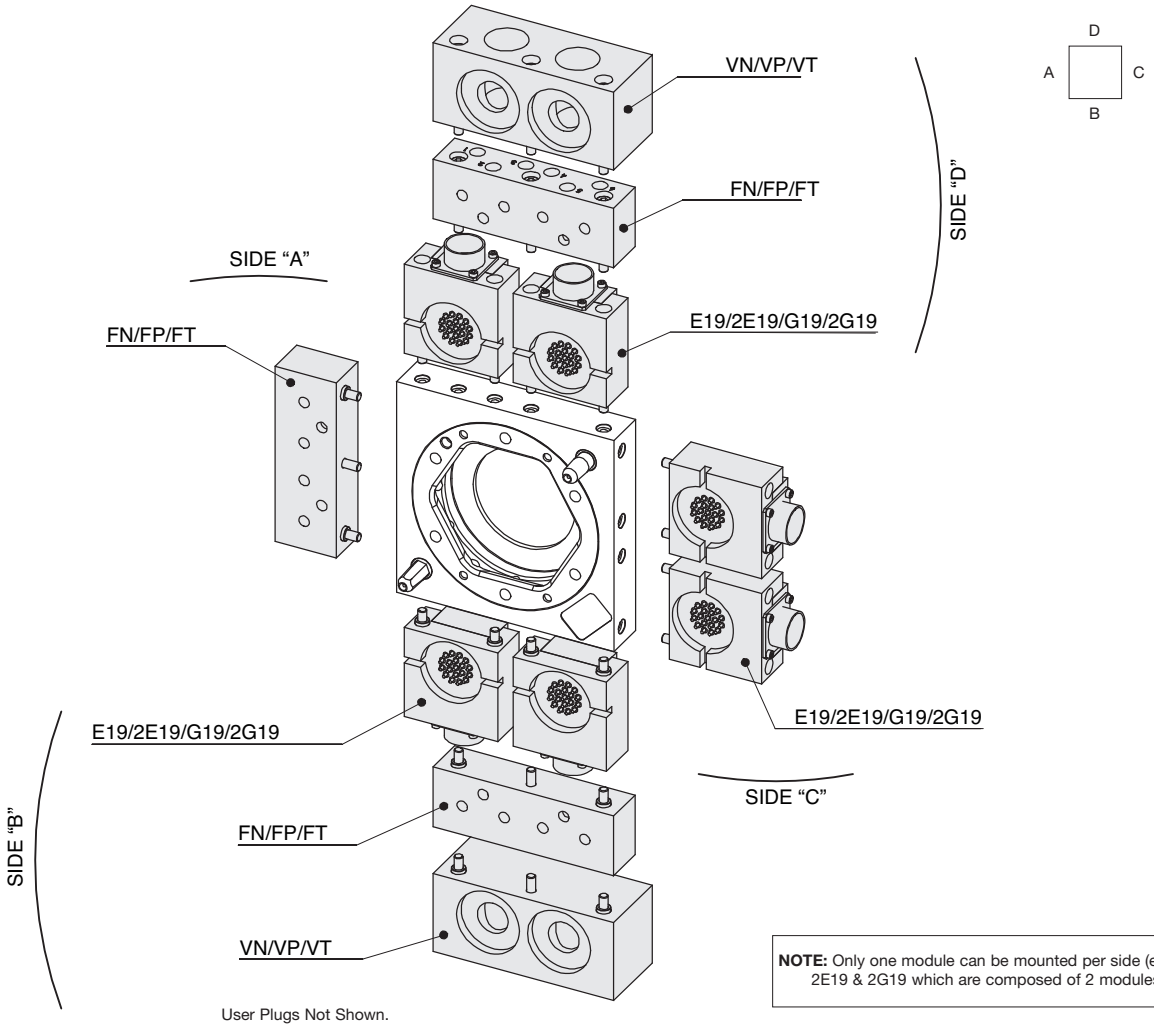
Loading Information



Loading Capacity

	Imperial	Metric
Maximum Tensile **T**	600 lbs.	2670 N
Maximum Compressive **C**	800 lbs.	3560 N
Maximum Moment M_x	14000 in.- lbs.	1580 Nm
Maximum Moment M_y	14000 in.- lbs.	1580 Nm
Maximum Moment M_z	14000 in.- lbs.	1580 Nm





User Plugs Not Shown.

NOTE: Only one module can be mounted per side (except 2E19 & 2G19 which are composed of 2 modules)

How to Order: (Order Accessories separately from Basic Model)

For detailed sensing and module information see pages 8.40 - 8.51

BASIC MODEL | SIDE A | SIDE C

RTP - 400 - ☐ - ☐ - ☐ - ☐

SIZE | SIDE B | SIDE D

SIDE A:

0	No optional module
FN	6 x 1/8" NPT air ports module, face seal, 10 bar
FP	6 x 1/8" BSPP air ports module, face seal, 10 bar
FT	6 x 1/8" BSPT air ports module, face seal, 10 bar

SIDE B AND/OR D:

0	No optional module
E19†	19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
2E19† **	2x 19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
G19	19 pin, 5 Amp, 120 VDC Module w/Industrial User Conn., w/o Cable
2G19 **	2x 19 pin, 5 Amp, 120 VDC Module w/Industrial User Conn., w/o Cable
FN	6 x 1/8" NPT air ports module, face seal, 10 bar
FP	6 x 1/8" BSPP air ports module, face seal, 10 bar
FT	6 x 1/8" BSPT air ports module, face seal, 10 bar
VN	2 x 3/4" NPT vacuum ports module, face seal
VP	2 x 3/4" BSPP vacuum ports module, face seal
VT	2 x 3/4" BSPT vacuum ports module, face seal

†Cordset or plug are sold separa tely.

SIDE C:

0	No optional module
E19†	19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
2E19† **	2x 19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
G19	19 pin, 5 Amp, 120 VDC Module w/Industrial User Conn., w/o Cable
2G19 **	2x 19 pin, 5 Amp, 120 VDC Module w/Industrial User Conn., w/o Cable

†Cordset or plug are sold separa tely. **Not compatible with CD, CP or CN sensing option.

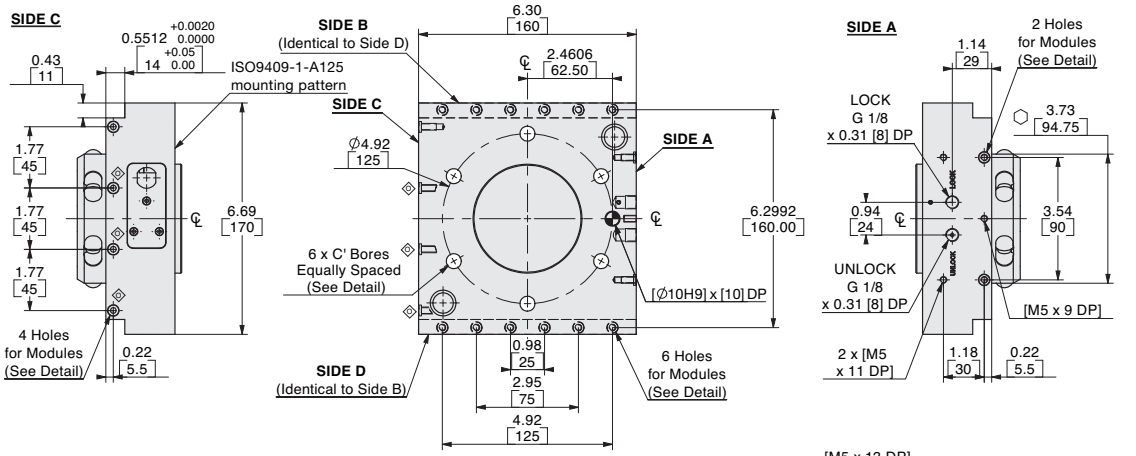
ELECTRICAL ACCESSORIES:

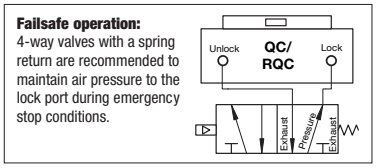
ELCT-049	90° Male Plug, w/o Cable, Solder Type, Cable Clamp for G19
CABL-031	90° Male Cordset with 2M Cable for E19

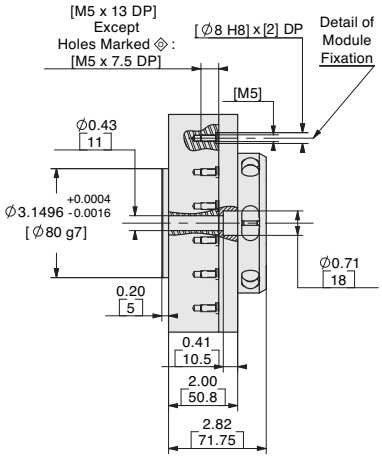
TOOL CHANGER RQC-800
ROBOT ADAPTER MODULE

Robohand

Specifications		RQC-800
Maximum Payload	800 lbs	360 Kg
Maximum Moment	22,000 in-lbs	2490 Nm
Weight of **RQC** Unit only	11.8 lb	5.3 Kg
Weight of Coupled Units	15.8 lbs	7.1 Kg
Pressure Range (locked cylinder)	60~100 psi	4~7 bar
Bore Ø	3.15 in.	80 mm
Displacement	5.83 in^3.	95.6 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	± 0.001 in.	±0.025 mm
Valve required to actuate	4-way, 2-position	





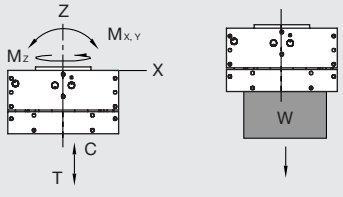


SIDE D
(Identical to Side B)

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

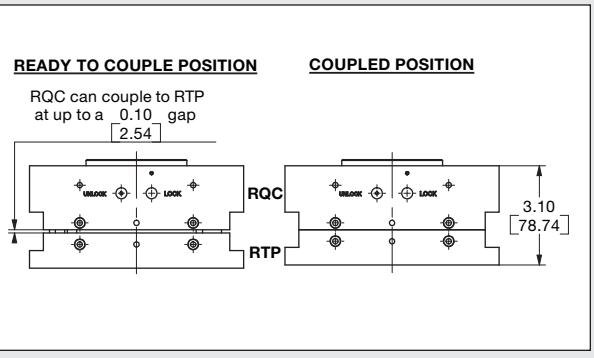
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

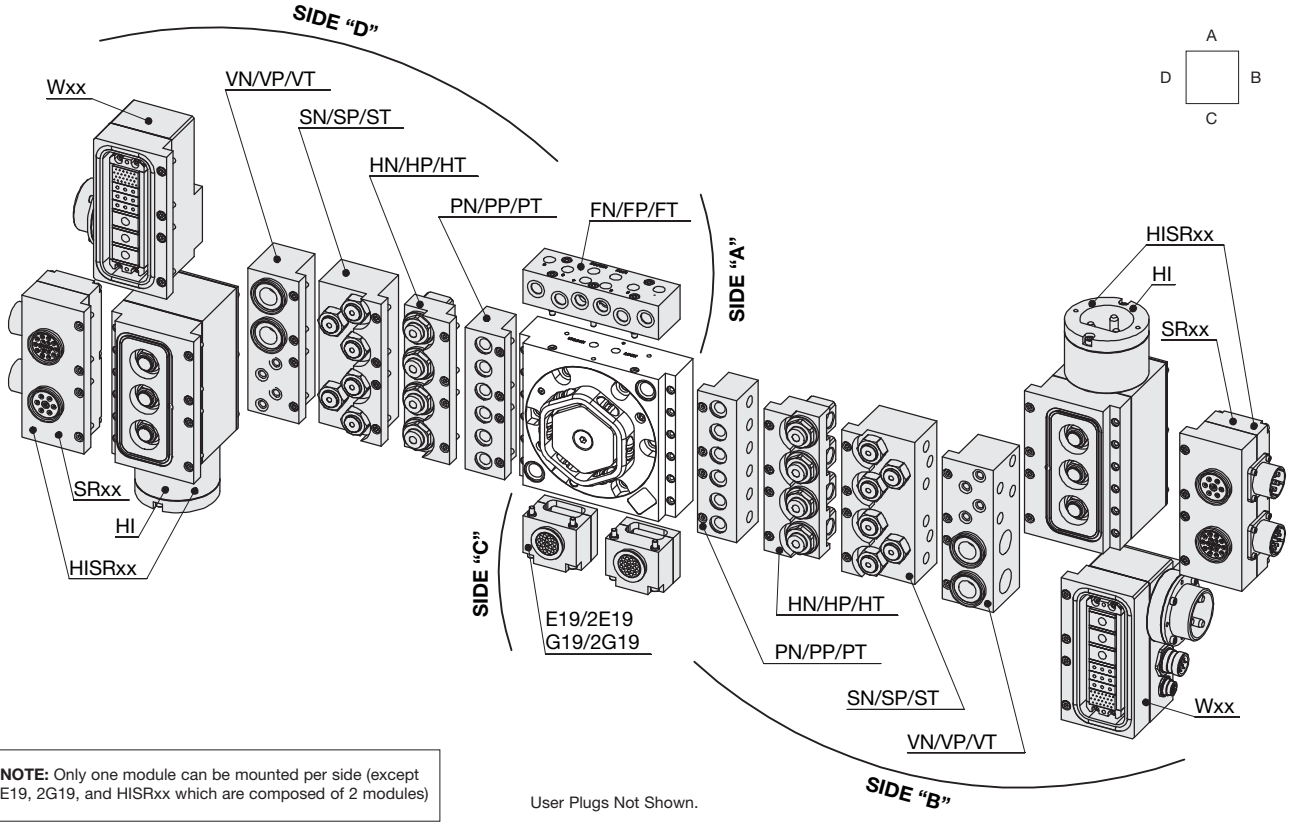
Loading Information



Loading Capacity

	Imperial	Metric
Maximum Tensile **T**	1200 lbs.	5340 N
Maximum Compressive **C**	1600 lbs.	7120 N
Maximum Moment M_x	22000 in.- lbs.	2490 Nm
Maximum Moment M_y	22000 in.- lbs.	2490 Nm
Maximum Moment M_z	22000 in.- lbs.	2490 Nm





NOTE: Only one module can be mounted per side (except 2E19, 2G19, and HISRxx which are composed of 2 modules)

User Plugs Not Shown.

How to Order: (Order Accessories separately from Basic Model)

For detailed sensing and module information see pages 8.40 - 8.51

BASIC MODEL | PORT | SIDE A | SIDE C

RQC - 800 | ☐ - ☐ - ☐ - ☐ - ☐ - ☐

SIZE | SENSING | SIDE B | SIDE D

PORT:

N	NPT port
M	BSPP ports
A	BSPT ports

SENSING (FOR LATCH, UNLATCH AND READY-TO-COUPLE):

LO	No sensing
LP*	PNP Inductive sensor
CP†	PNP Inductive sensor with M12 connector
LN*	NPN Inductive sensor
CN†	NPN Inductive sensor with M12 connector
LD*	Dry contact sensor
CD†	Dry contact sensor with M12 connector

*Requires E19 module or G19 module mounted on side C. †Cordset or plug are sold separately.

ELECTRICAL ACCESSORIES:

ELCT-048	90° Female Plug, w/o Cable, Solder Type, Cable Clamp for G19
CABL-028	90° Female M12 Cordset with 2M Cable for CP, CN, and CD
CABL-029	90° Female Cordset with 4M Cable for E19
OSRK-004	PNP Inductive Sensor Repair Kit
OSRK-005	NPN Inductive Sensor Repair Kit
OSRK-006	Dry Contact Sensor Repair Kit

SIDE A:

0	No optional module
FN	6 x 1/4" NPT air ports module, face seal, 10 bar
FP	6 x 1/4" BSPP air ports module, face seal, 10 bar
FT	6 x 1/4" BSPT air ports module, face seal, 10 bar

SIDE B AND/OR D:

0	No optional module
PN	6 x 1/4" NPT air ports module, face seal, 10 bar
PP	6 x 1/4" BSPP air ports module, face seal, 10 bar
PT	6 x 1/4" BSPT air ports module, face seal, 10 bar
HN	4 x 3/8" NPT fluid ports module, 100 bar
HP	4 x 3/8" BSPP fluid ports module, 100 bar
HT	4 x 3/8" BSPT fluid ports module, 100 bar
SN	6 x 1/4" NPT air ports module, self sealing, 10 bar
SP	6 x 1/4" BSPP air ports module, self sealing, 10 bar
ST	6 x 1/4" BSPT air ports module, self sealing, 10 bar
VN	2 x 3/4" vacuum + 4 x 1/4" air NPT ports module, face sealing
VP	2 x 3/4" vacuum + 4 x 1/4" air BSPP ports module, face sealing
VT	2 x 3/4" vacuum + 4 x 1/4" air BSPT ports module, face sealing
Wxx**	Servo Gun and Welding Gun Module (Pin and Socket) - Consult factory
HI	Welding Gun module (3 x 180 Amp spring loaded pins)
SRxx**	Servo Gun Module (with spring loaded pins)
HISRxx††	Servo Gun and Welding Gun module (with spring loaded pins)

** xx are attributed according to the customer wiring diagram. Consult factory.
†† SRxx module can be mounted on the HI module to use with electric welding gun.

SIDE C:

0	No optional module
E19†	19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
2E19†*	2x 19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
G19	19 pin, 5 Amp, 120 VDC Module w/Industrial User Conn., w/o Cable
2G19*	2x 19 pin, 5 Amp, 120 VDC Module w/Industrial User Conn., w/o Cable

†Cordset or plug are sold separately. ***Not compatible with CD, CP or CN sensing option.

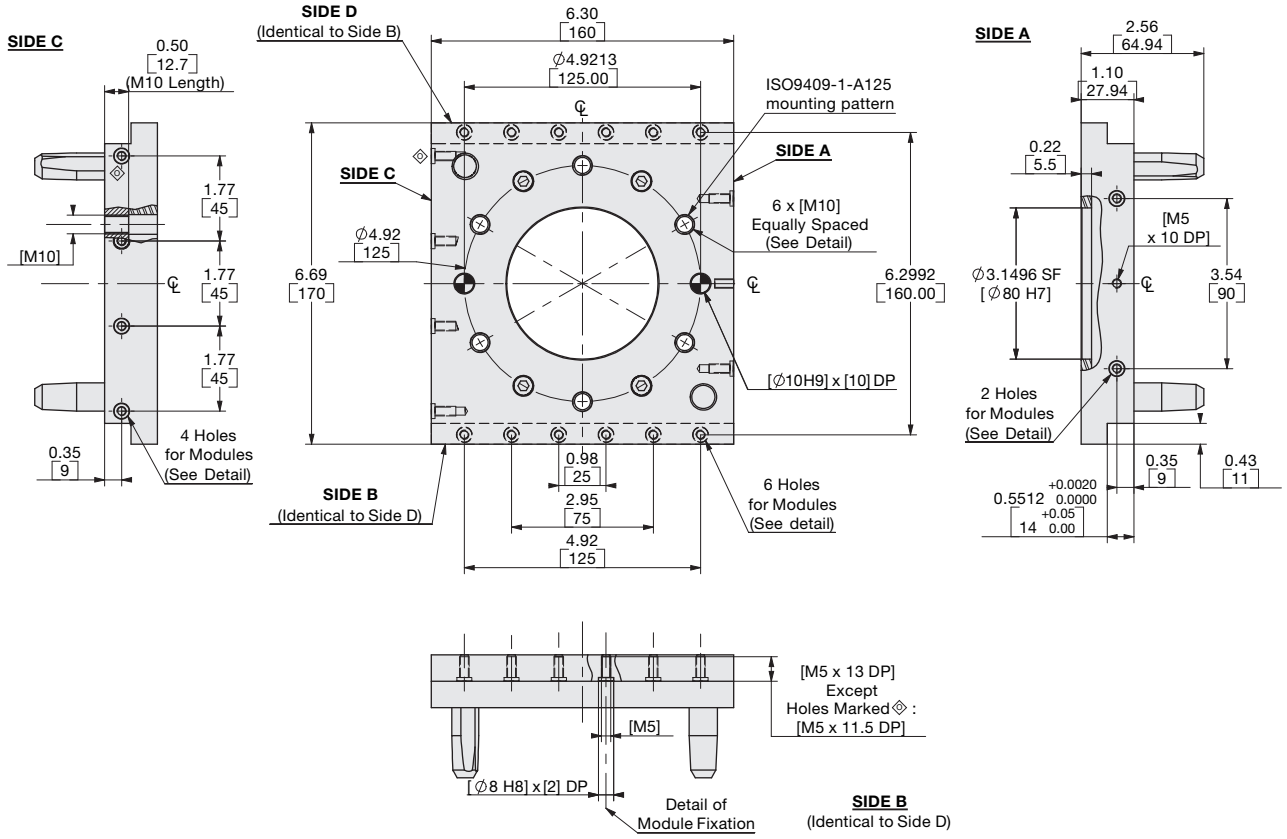
PNEUMATIC ACCESSORIES:

SLKT-403	RQC-800 Standard Seal Repair Kit

TOOL CHANGER RTP-800
TOOL ADAPTER MODULE

Robohand

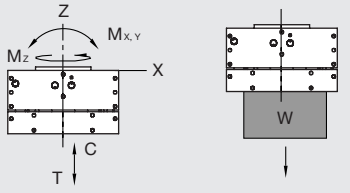
Specifications	RTP-800	
Maximum Payload	800 lbs	360 Kg
Maximum Moment	22,000 in-lbs	2490 Nm
Weight of **RTP** Unit only	4 lb	1.8 Kg
Weight of Coupled Units	15.8 lbs	7.1 Kg
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	± 0.001 in.	±0.025 mm



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

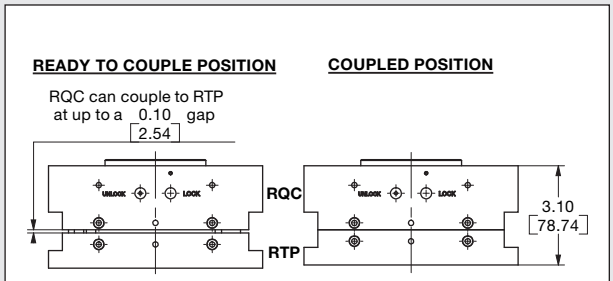
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

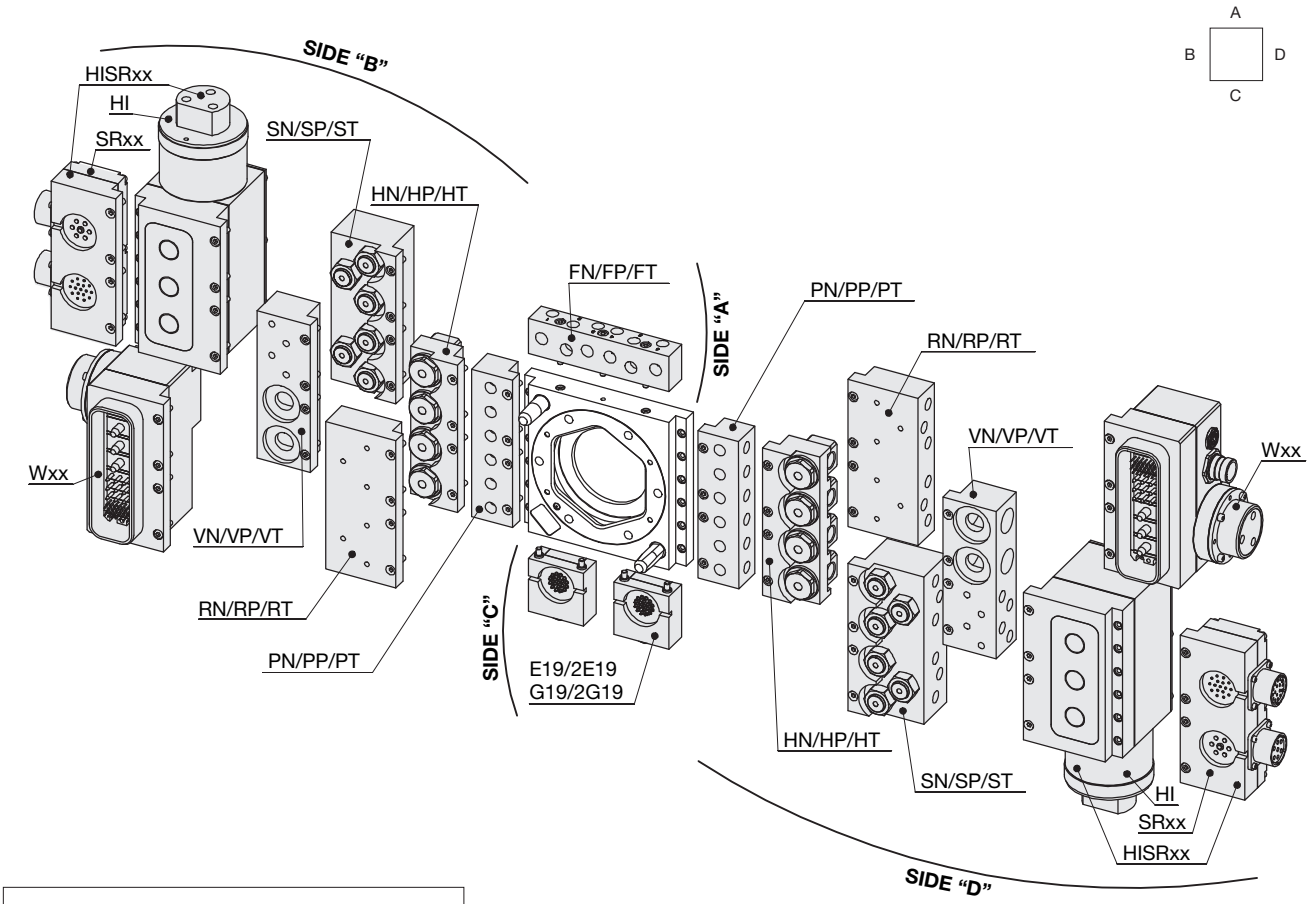
Loading Information



Loading Capacity

	Imperial	Metric
Maximum Tensile **T**	1200 lbs.	5340 N
Maximum Compressive **C**	1600 lbs.	7120 N
Maximum Moment **Mx**	22000 in.- lbs.	2490 Nm
Maximum Moment **My**	22000 in.- lbs.	2490 Nm
Maximum Moment **Mz**	22000 in.- lbs.	2490 Nm





NOTE: Only one module can be mounted per side (except 2E19, 2G19, and HISRxx which are composed of 2 modules)

User Plugs Not Shown.

How to Order: (Order Accessories separately from Basic Model)

For detailed sensing and module information see pages 8.40 - 8.51

BASIC MODEL | SIDE A | SIDE C

RTP - 800 - [ ] - [ ] - [ ] - [ ]

SIZE | SIDE B | SIDE D

SIDE A:

0	No optional module
FN	6 x 1/4" NPT air ports module, face seal, 10 bar
FP	6 x 1/4" BSPP air ports module, face seal, 10 bar
FT	6 x 1/4" BSPT air ports module, face seal, 10 bar

SIDE C:

0	No optional module
E19†	19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
2E19†***	2x 19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
G19	19 pin, 5 Amp, 120 VDC Module w/Industrial User Conn., w/o Cable
2G19**	2x 19 pin, 5 Amp, 120 VDC Module w/Industrial User Conn., w/o Cable

†Cordset or plug are sold separately. ***Not compatible with CD, CP or CN sensing option.

ELECTRICAL ACCESSORIES:

ELCT-049	90° Male Plug, w/o Cable, Solder Type, Cable Clamp for G19
CABL-031	90° Male Cordset with 2M Cable for E19

SIDE B AND/OR D:

0	No optional module
PN	6 x 1/4" NPT air ports module, face seal, 10 bar
PP	6 x 1/4" BSPP air ports module, face seal, 10 bar
PT	6 x 1/4" BSPT air ports module, face seal, 10 bar
HN	4 x 3/8" NPT fluid ports module, 100 bar
HP	4 x 3/8" BSPP fluid ports module, 100 bar
HT	4 x 3/8" BSPT fluid ports module, 100 bar
RN*	6 x 1/4" NPT air ports module, single shut-off flat face, 10 bar
RP*	6 x 1/4" BSPP air ports module, single shut-off flat face, 10 bar
RT*	6 x 1/4" BSPT air ports module, single shut-off flat face, 10 bar
SN	6 x 1/4" NPT air ports module, double shut-off flat face, 10 bar
SP	6 x 1/4" BSPP air ports module, double shut-off flat face, 10 bar
ST	6 x 1/4" BSPT air ports module, double shut-off flat face, 10 bar
VN	2 x 3/4" vacuum + 4 x 1/4" air NPT ports module, face sealing
VP	2 x 3/4" vacuum + 4 x 1/4" air BSPP ports module, face sealing
VT	2 x 3/4" vacuum + 4 x 1/4" air BSPT ports module, face sealing
Wxx**	Servo Gun and Welding Gun Module (Pin and Socket) - Consult factory
HI	Welding Gun module (3 x 180 Amp spring loaded pins)
SRxx**	Servo Gun Module (with spring loaded pins)
HISRxx** ††	Servo Gun and Welding Gun module (with spring loaded pins)

* Used with SN, SP, or ST modules on robot half.

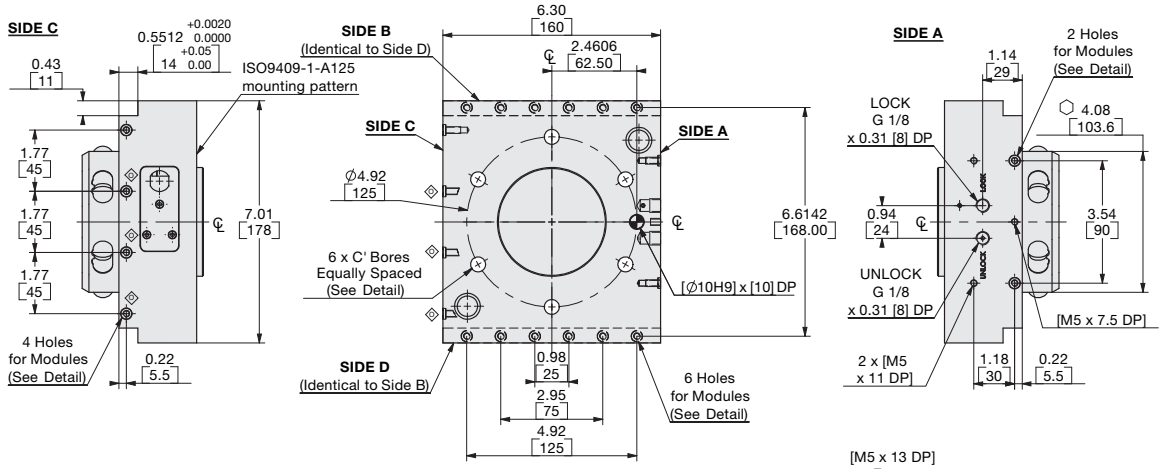
** xx are attributed according to the customer wiring diagram. Consult factory.

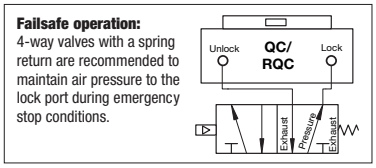
†† SRxx module can be mounted on the HI module to use with electric welding gun.

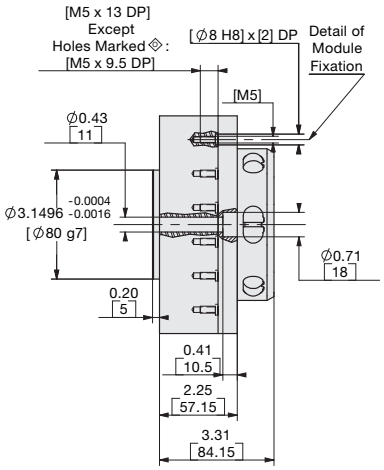
TOOL CHANGER RQC-1200
ROBOT ADAPTER MODULE

Robohand

Specifications	RQC-1200	
Maximum Payload	1200 lbs	550 Kg
Maximum Moment	30,000 in-lbs	3390 Nm
Weight of **RQC** Unit only	14.1 lb	6.4 Kg
Weight of Coupled Units	18.4 lbs	8.3 Kg
Pressure Range (locked cylinder)	60~100 psi	4~7 bar
Bore Ø	3.74 in.	95 mm
Displacement	9.38 in^3.	153.7 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	± 0.001 in.	±0.025 mm
Valve required to actuate	4-way, 2-position	





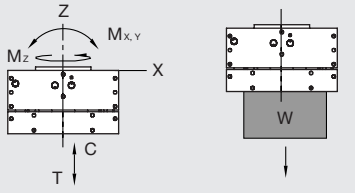


SIDE D
(Identical to Side B)

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

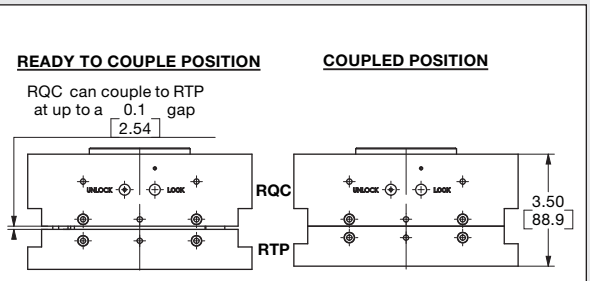
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

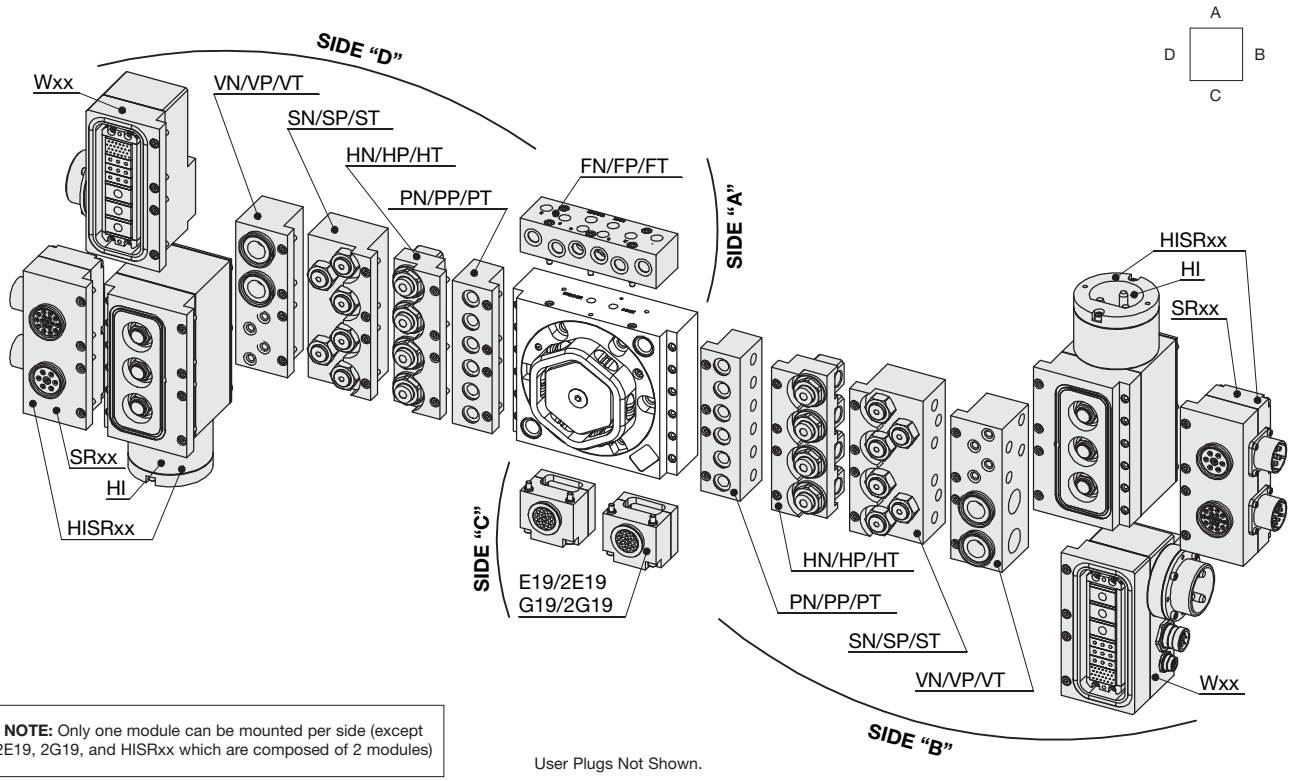
Loading Information



Loading Capacity

	Imperial	Metric
Maximum Tensile **T**	1800 lbs.	8000 N
Maximum Compressive **C**	2400 lbs.	10700 N
Maximum Moment M_x	30000 in.- lbs.	3390 Nm
Maximum Moment M_y	30000 in.- lbs.	3390 Nm
Maximum Moment M_z	30000 in.- lbs.	3390 Nm





NOTE: Only one module can be mounted per side (except 2E19, 2G19, and HISRxx which are composed of 2 modules)

User Plugs Not Shown.

How to Order: (Order Accessories separately from Basic Model)

For detailed sensing and module information see pages 8.40 - 8.51

BASIC MODEL | PORT | SIDE A | SIDE C

RQC - 1200 ☐ - ☐ - ☐ - ☐ - ☐ - ☐

SIZE | SENSING | SIDE B | SIDE D

PORT:

N	NPT port
M	BSPP ports
A	BSPT ports

SENSING (FOR LATCH, UNLATCH AND READY-TO-COUPLE):

LO	No sensing
LP*	PNP Inductive sensor
CP†	PNP Inductive sensor with M12 connector
LN*	NPN Inductive sensor
CN†	NPN Inductive sensor with M12 connector
LD*	Dry contact sensor
CD†	Dry contact sensor with M12 connector

*Requires E19 module or G19 module mounted on side C. †Cordset or plug are sold separately.

ELECTRICAL ACCESSORIES:

ELCT-048	90° Female Plug, w/o Cable, Solder Type, Cable Clamp for G19
CABL-028	90° Female M12 Cordset with 2M Cable for CP, CN, and CD
CABL-029	90° Female Cordset with 4M Cable for E19
OSRK-004	PNP Inductive Sensor Repair Kit
OSRK-005	NPN Inductive Sensor Repair Kit
OSRK-006	Dry Contact Sensor Repair Kit

SIDE A:

0	No optional module
FN	6 x 1/4" NPT air ports module, face seal, 10 bar
FP	6 x 1/4" BSPP air ports module, face seal, 10 bar
FT	6 x 1/4" BSPT air ports module, face seal, 10 bar

SIDE B AND/OR D:

0	No optional module
PN	6 x 1/4" NPT air ports module, face seal, 10 bar
PP	6 x 1/4" BSPP air ports module, face seal, 10 bar
PT	6 x 1/4" BSPT air ports module, face seal, 10 bar
HN	4 x 3/8" NPT fluid ports module, 100 bar
HP	4 x 3/8" BSPP fluid ports module, 100 bar
HT	4 x 3/8" BSPT fluid ports module, 100 bar
SN	6 x 1/4" NPT air ports module, self sealing, 10 bar
SP	6 x 1/4" BSPP air ports module, self sealing, 10 bar
ST	6 x 1/4" BSPT air ports module, self sealing, 10 bar
VN	2 x 3/4" vacuum + 4 x 1/4" air NPT ports module, face sealing
VP	2 x 3/4" vacuum + 4 x 1/4" air BSPP ports module, face sealing
VT	2 x 3/4" vacuum + 4 x 1/4" air BSPT ports module, face sealing
Wxx**	Servo Gun and Welding Gun Module (Pin and Socket) - Consult factory
HI	Welding Gun module (3 x 180 Amp spring loaded pins)
SRxx**	Servo Gun Module (with spring loaded pins)
HISRxx††	Servo Gun and Welding Gun module (with spring loaded pins)

** xx are attributed according to the customer wiring diagram. Consult us.
†† SRxx module can be mounted on the HI module to use with electric welding gun.

SIDE C:

0	No optional module
E19†	19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
2E19†*	2x 19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
G19	19 pin, 5 Amp, 120 VDC Module w/Industrial User Conn., w/o Cable
2G19*	2x 19 pin, 5 Amp, 120 VDC Module w/Industrial User Conn., w/o Cable

†Cordset or plug are sold separately. ***Not compatible with CD, CP or CN sensing option.

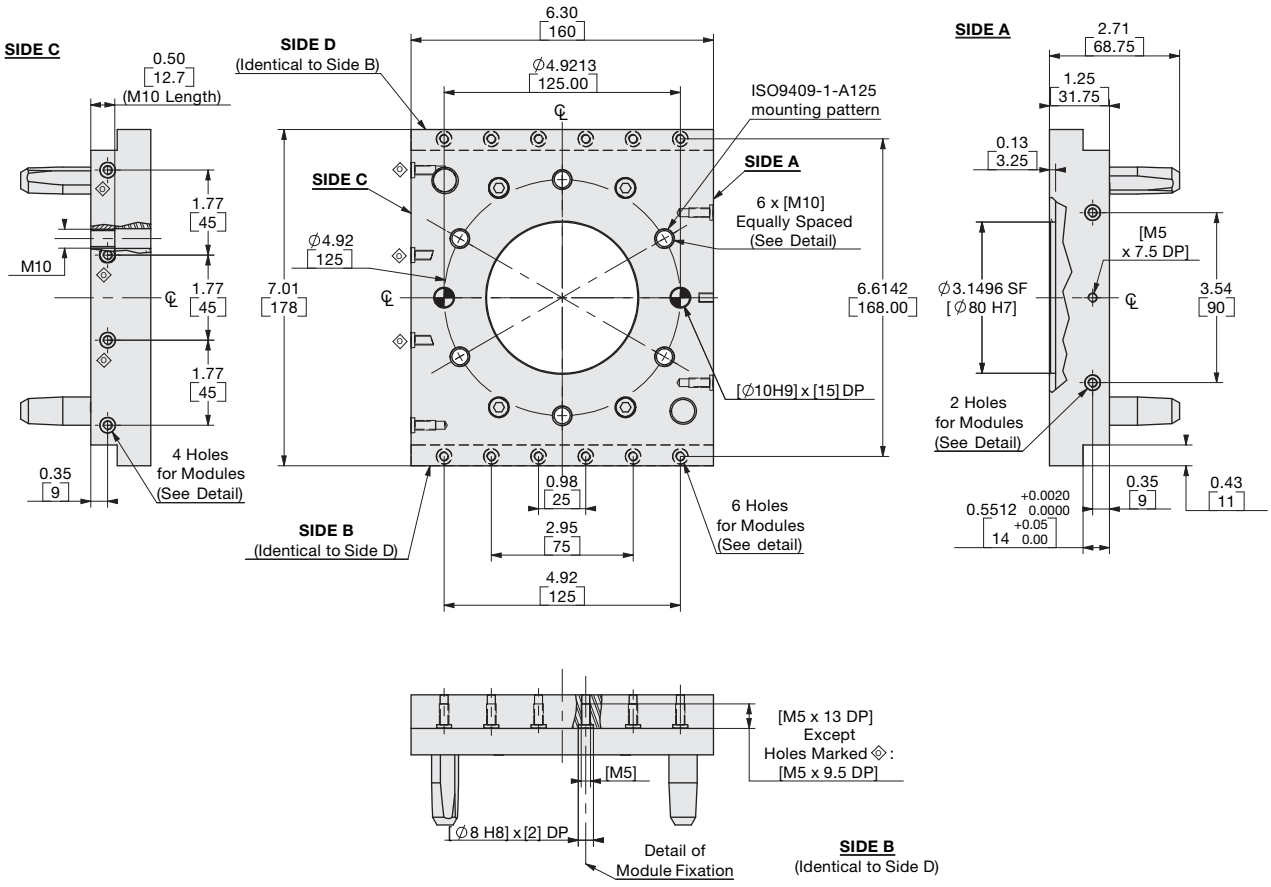
PNEUMATIC ACCESSORIES:

SLKT-404	RQC-1200 Standard Seal Repair Kit

TOOL CHANGER RTP-1200
TOOL ADAPTER MODULE

Robohand

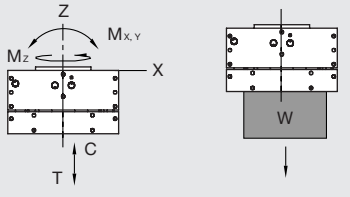
Specifications	RTP-1200	
Maximum Payload	1200 lbs	550 Kg
Maximum Moment	30,000 in-lbs	3390 Nm
Weight of **RTP** Unit only	4.3 lb	1.9 Kg
Weight of Coupled Units	18.4 lbs	8.3 Kg
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	± 0.001 in.	±0.025 mm



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

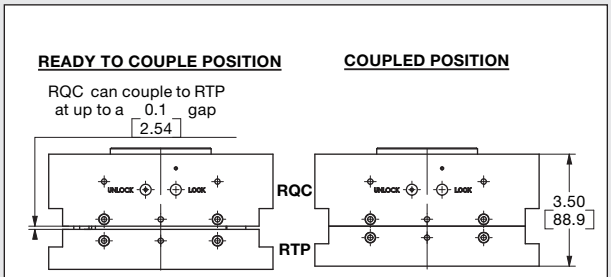
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

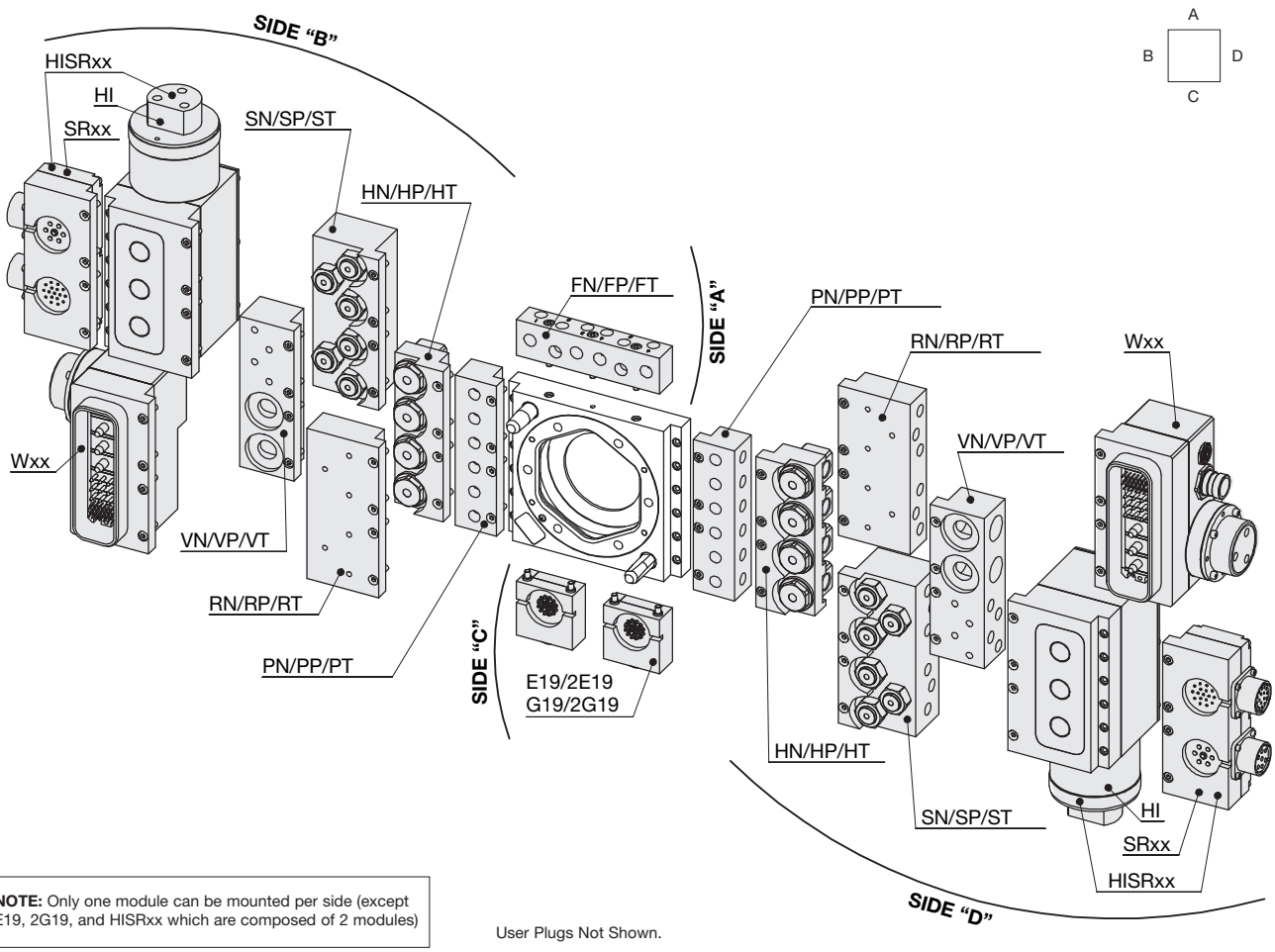
Loading Information



Loading Capacity

	Imperial	Metric
Maximum Tensile **T**	1800 lbs.	8000 N
Maximum Compressive **C**	2400 lbs.	10700 N
Maximum Moment M_x	30000 in.- lbs.	3390 Nm
Maximum Moment M_y	30000 in.- lbs.	3390 Nm
Maximum Moment M_z	30000 in.- lbs.	3390 Nm





NOTE: Only one module can be mounted per side (except 2E19, 2G19, and HISRxx which are composed of 2 modules)

User Plugs Not Shown.

How to Order: (Order Accessories separately from Basic Model)

For detailed sensing and module information see pages 8.40 - 8.51

BASIC MODEL | SIDE A | SIDE C

RTP - 1200 - [ ] - [ ] - [ ] - [ ]

SIZE | SIDE B | SIDE D

SIDE A:

0	No optional module
FN	6 x 1/4" NPT air ports module, face seal, 10 bar
FP	6 x 1/4" BSPP air ports module, face seal, 10 bar
FT	6 x 1/4" BSPT air ports module, face seal, 10 bar

SIDE C:

0	No optional module
E19†	19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
2E19†***	2x 19 pin, 3 Amp, 48 VDC Module w/Turck M12 connector, w/o Cordset
G19	19 pin, 5 Amp, 120 VDC Module w/Industrial User Conn., w/o Cable
2G19**	2x 19 pin, 5 Amp, 120 VDC Module w/Industrial User Conn., w/o Cable

†Cordset or plug are sold separa tely. ***Not compatible with CD, CP or CN sensing option.

ELECTRICAL ACCESSORIES:

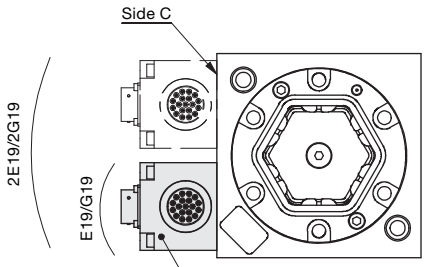
ELCT-049	90° Male Plug, w/o Cable, Solder Type, Cable Clamp for G19
CABL-031	90° Male Cordset with 2M Cable for E19

SIDE B AND/OR D:

0	No optional module
PN	6 x 1/4" NPT air ports module, face seal, 10 bar
PP	6 x 1/4" BSPP air ports module, face seal, 10 bar
PT	6 x 1/4" BSPT air ports module, face seal, 10 bar
HN	4 x 3/8" NPT fluid ports module, 100 bar
HP	4 x 3/8" BSPP fluid ports module, 100 bar
HT	4 x 3/8" BSPT fluid ports module, 100 bar
RN*	6 x 1/4" NPT air ports module, single shut-off flat face, 10 bar
RP*	6 x 1/4" BSPP air ports module, single shut-off flat face, 10 bar
RT*	6 x 1/4" BSPT air ports module, single shut-off flat face, 10 bar
SN	6 x 1/4" NPT air ports module, double shut-off flat face, 10 bar
SP	6 x 1/4" BSPP air ports module, double shut-off flat face, 10 bar
ST	6 x 1/4" BSPT air ports module, double shut-off flat face, 10 bar
VN	2 x 3/4" vacuum + 4 x 1/4" air NPT ports module, face sealing
VP	2 x 3/4" vacuum + 4 x 1/4" air BSPP ports module, face sealing
VT	2 x 3/4" vacuum + 4 x 1/4" air BSPT ports module, face sealing
Wxx**	Servo Gun and Welding Gun Module (Pin and Socket) - Consult factory
HI	Welding Gun module (3 x 180 Amp spring loaded pins)
SRxx**	Servo Gun Module (with spring loaded pins)
HISRxx** ††	Servo Gun and Welding Gun module (with spring loaded pins)

* Used with SN, SP, or ST modules on robot half.
** xx are attributed according to the customer wiring dia gram. Consult factory.
†† SRxx module can be mounted on the HI module to use with electric welding gun.

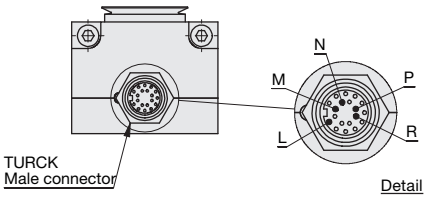
E19/G19 Modules connecting with latch/unlatch sensors



When LP, LN, or LD option is ordered, 3, 4 or 5 wires are reserved on the E19 or G19 module.
See chart

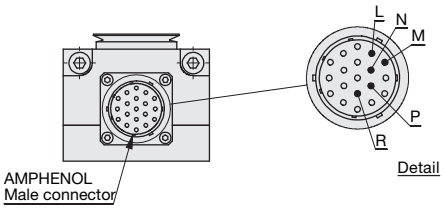
	RESERVED PINS NUMBERS ON E19 / G19	
	RQC 200 & 400	**RQC 800 & 1200**
LP or LN (Inductive)	**R:** + 10-30 VDC **L:** Common **M:** Lock **N:** Unlock	**R:** + 10-30 VDC **L:** Common **M:** Lock **N:** Unlock **P:** Ready to Couple
LD (Dry contact)	**L:** Common **M:** Lock **N:** Unlock	**L:** Common **M:** Lock **N:** Unlock **P:** Ready to Couple

E19 Pins numbering



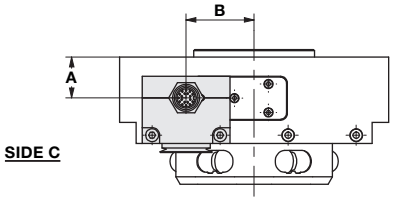
Wire color on CABL-029 cordset	
Contact #	**Wire Color**
R	Red
L	Brown
M	Orange
N	Grey / Brown
P	White

G19 Pins numbering



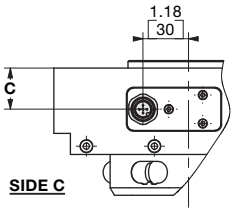
LOCK / UNLOCK & TOOL PLATE PRESENCE SENSING OPTIONS
(with Inductive Sensors or Dry Contact Switches)

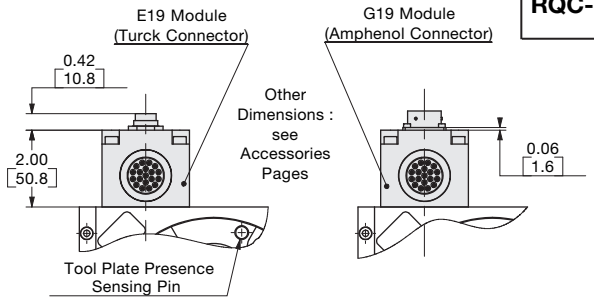
Sensing Accessories LP, LN or LD using 19 Pins Module E19 or G19
(Require 3, 4 or 5 of the 19 Pins : see on this page)

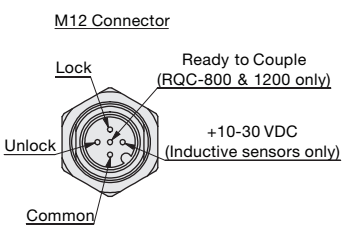


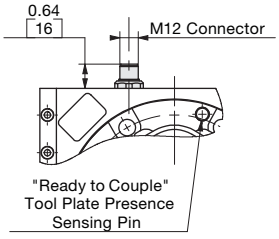
	A	B	C
RQC-200	0.563 [14.3]	0.886 [22.5]	0.652 [16.55]
RQC-400	0.811 [20.6]	1.329 [33.75]	0.685 [17.4]
RQC-800	0.811 [20.6]	1.772 [45]	0.821 [20.85]
RQC-1200	1.061 [26.95]	1.772 [45]	1.071 [27.2]

Sensing Accessories CP, CN or CD by M12 Connector
(3, 4 or 5 Pins : see below)



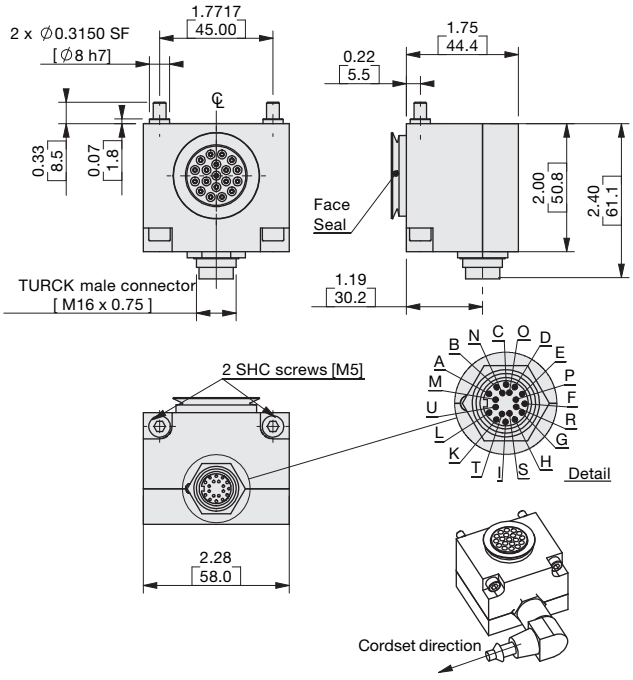




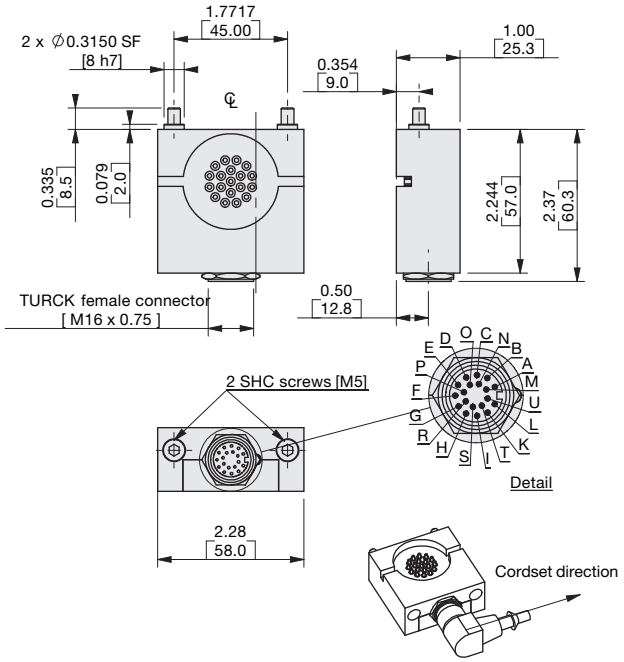


19 Pin Module 3 Amp - 48 VDC (E19)
For RQC/RTP- 200/400/800/1200

Robot half



Tool half



ROBOT HALF MODULES:

How to Order Modules: RQC-200/400

BASIC MODEL	PORT	SIDE A	SIDE C
RQC - 200	N - LP	-	E19 - E19 - E19
SIZE	SENSING	SIDE B	SIDE D

PREMOUNTED	SEPARATE	
E19*	**KE19-RQC***	19 Pin Module 3 Amp @ 48 VDC, Turck Conn.

ACCESSORIES:

CABL-029	90° Female Cordset with 4 Met Cable for E19

TOOL HALF MODULES:

How to Order Modules: RTP-200/400

BASIC MODEL	SIDE A	SIDE C
RTP - 400 -	- E19 - E19 - E19	
SIZE	SIDE B	SIDE D

PREMOUNTED	SEPARATE	
E19*	**KE19-RTP***	19 Pin Module 3 Amp @ 48 VDC, Turck Conn.

ACCESSORIES:

CABL-031	90° Male Cordset with 2 Meter Cable for E19

How to Order Modules: RQC-800/1200

BASIC MODEL	PORT	SIDE A	SIDE C
RQC - 1200	N - LP	- -	E19 -
SIZE	SENSING	SIDE B	SIDE D

PREMOUNTED	SEPARATE	
E19*	**KE19-RQC***	19 Pin Module 3 Amp @ 48 VDC, Turck Conn.

ACCESSORIES:

CABL-029	90° Female Cordset with 4 Met Cable for E19

How to Order Modules: RTP-800/1200

BASIC MODEL	SIDE A	SIDE C
RTP - 800 -	- - E19 -	
SIZE	SIDE B	SIDE D

PREMOUNTED	SEPARATE	
E19*	**KE19-RTP***	19 Pin Module 3 Amp @ 48 VDC, Turck Conn.

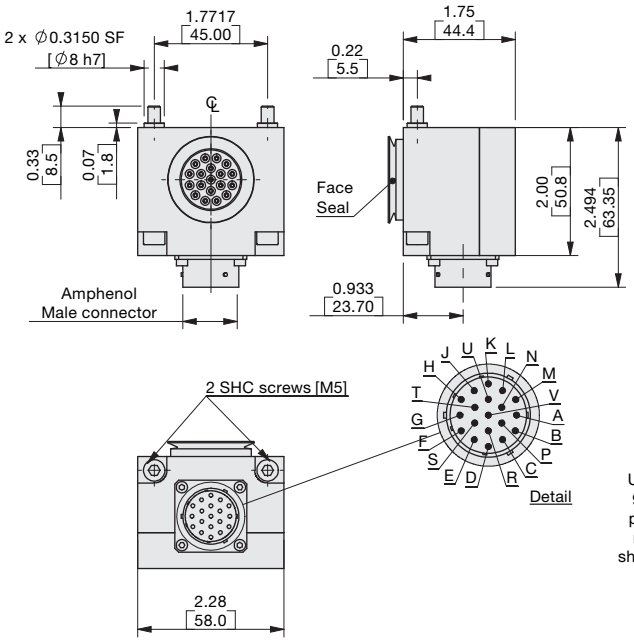
ACCESSORIES:

CABL-031	90° Male Cordset with 2 Meter Cable for E19

Module kits above include: Indexing sleeves and hardware. * Cordset sold separately.

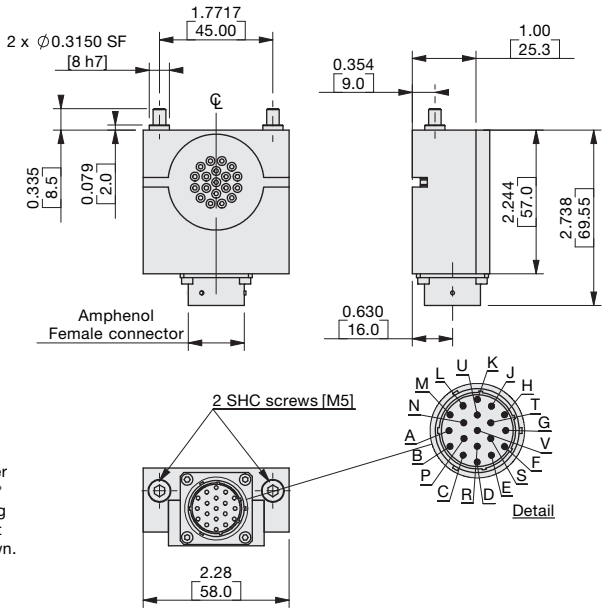
19 Pin Module 5 Amp - 120 VDC (G19)
For RQC/RTP- 200/400/800/1200

Robot half



User 90° plug not shown.

Tool half



ROBOT HALF MODULES:

TOOL HALF MODULES:

How to Order Modules: RQC-200/400

BASIC MODEL · PORT · SIDE A · SIDE C

RQC - 200 - N - LP - [ ] - G19 - G19 - G19

SIZE · SENSING · SIDE B · SIDE D

PREMOUNTED	SEPARATE	
G19	KG19-RQC	19 Pin, 5 Amp Module with Industrial User Connector, without Cable

ACCESSORIES:

	ELCT-048	90° Female Plug, without Cable, Solder Type, Cable Clamp

How to Order Modules: RTP-200/400

BASIC MODEL · SIDE A · SIDE C

RTP - 400 - [ ] - G19 - G19 - G19

SIZE · SIDE B · SIDE D

PREMOUNTED	SEPARATE	
G19	KG19-RTP	19 Pin, 5 Amp Module with Industrial User Connector, without Cable

ACCESSORIES:

	ELCT-049	90° Male Plug, without Cable, Solder Type, Cable Clamp

How to Order Modules: RQC-800/1200

BASIC MODEL · PORT · SIDE A · SIDE C

RQC - 1200 - N - LP - [ ] - [ ] - G19 - [ ]

SIZE · SENSING · SIDE B · SIDE D

PREMOUNTED	SEPARATE	
G19	KG19-RQC	19 Pin, 5 Amp Module with Industrial User Connector, without Cable

ACCESSORIES:

	ELCT-048	90° Female Plug, without Cable, Solder Type, Cable Clamp

How to Order Modules: RTP-800/1200

BASIC MODEL · SIDE A · SIDE C

RTP - 800 - [ ] - [ ] - G19 - [ ]

SIZE · SIDE B · SIDE D

PREMOUNTED	SEPARATE	
G19	KG19-RTP	19 Pin, 5 Amp Module with Industrial User Connector, without Cable

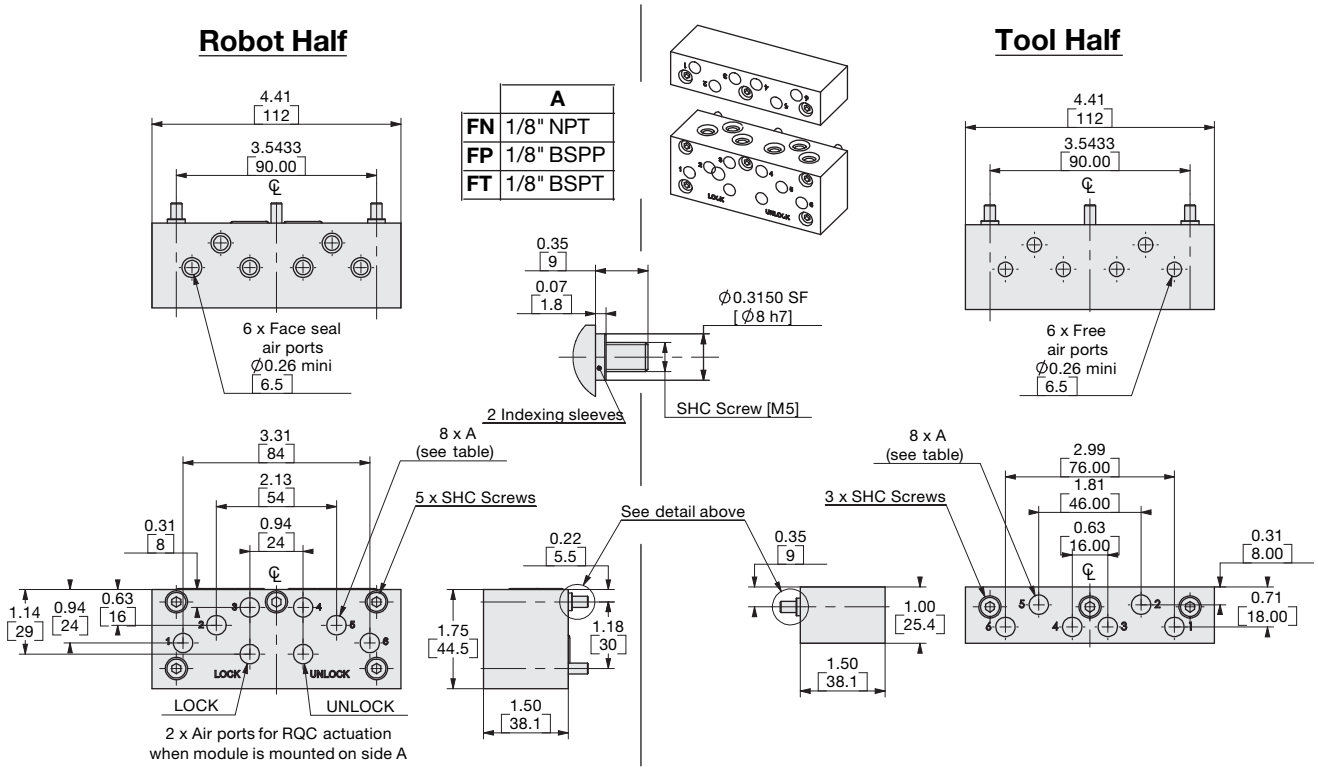
ACCESSORIES:

	ELCT-049	90° Male Plug, without Cable, Solder Type, Cable Clamp

Module kits above include: 90° plug (without cable), indexing sleeves and hardware.

6 x 1/8" Air Ports Module, Face Seal (FN, FP or FT)

For RQC/RTP-200 & RQC/RTP-400



Maximum working pressure: 10 bar

TOOL HALF MODULES:

How to Order Modules: RQC-200/400

BASIC MODEL – PORT – SIDE A – SIDE C

RQC - 400 N - LP - FN - FN - [ ] - FN

SIZE – SENSING – SIDE B – SIDE D

MODULES FOR RQC-200/400

PREMOUNTED	SEPARATE	
FN	KFN-RQC200	6 x 1/8" NPT Air Ports, Face Sealing, 10 bar
FP	KFP-RQC200	6 x 1/8" BSPP Air Ports, Face Sealing, 10 bar
FT	KFT-RQC200	6 x 1/8" BSPT Air Ports, Face Sealing, 10 bar

ACCESSORIES:

	SLKT-406	6 x 1/8" Air Module Seal Repair Kit

How to Order Modules: RTP-200/400

BASIC MODEL – SIDE A – SIDE C

RTP - 400 - FN - FN - [ ] - FN

SIZE – SIDE B – SIDE D

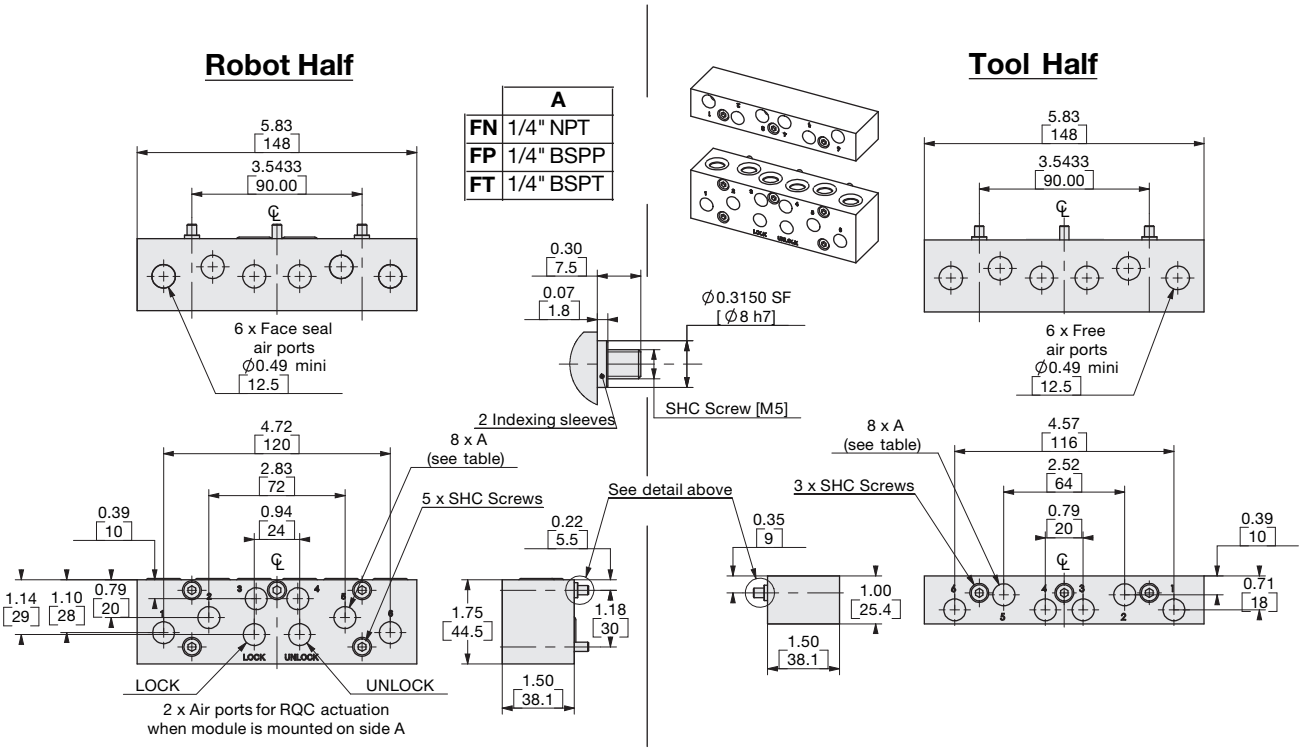
MODULE FOR RTP-200/400

PREMOUNTED	SEPARATE	
FN	KFN-RTP200	6 x 1/8" NPT Air Ports, Face Sealing, 10 bar
FP	KFP-RTP200	6 x 1/8" BSPP Air Ports, Face Sealing, 10 bar
FT	KFT-RTP200	6 x 1/8" BSPT Air Ports, Face Sealing, 10 bar

Module kits above include: Seals, indexing sleeves and hardware.

6 x 1/4" Air Ports Module, Face Seal (FN, FP or FT)

For RQC/RTP-800 & RQC/RTP-1200



Maximum working pressure: 10 bar

ROBOT HALF MODULES:

How to Order Modules: RQC-800/1200

BASIC MODEL | PORT | SIDE A | SIDE C

RQC - 800 | N - LP - FN - | - | -

SIZE | SENSING | SIDE B | SIDE D

PREMOUNTED	SEPARATE	
FN	KFN-RQC800	6 x 1/4" NPT Air Ports, Face Sealing, 10 bar
FP	KFP-RQC800	6 x 1/4" BSPP Air Ports, Face Sealing, 10 bar
FT	KFT-RQC800	6 x 1/4" BSPT Air Ports, Face Sealing, 10 bar

ACCESSORIES:

	SLKT-410	6 x 1/4" Air Module Seal Repair Kit

TOOL HALF MODULES:

How to Order Modules: RTP-800/1200

BASIC MODEL | SIDE A | SIDE C

RTP - 800 - FN - | - | -

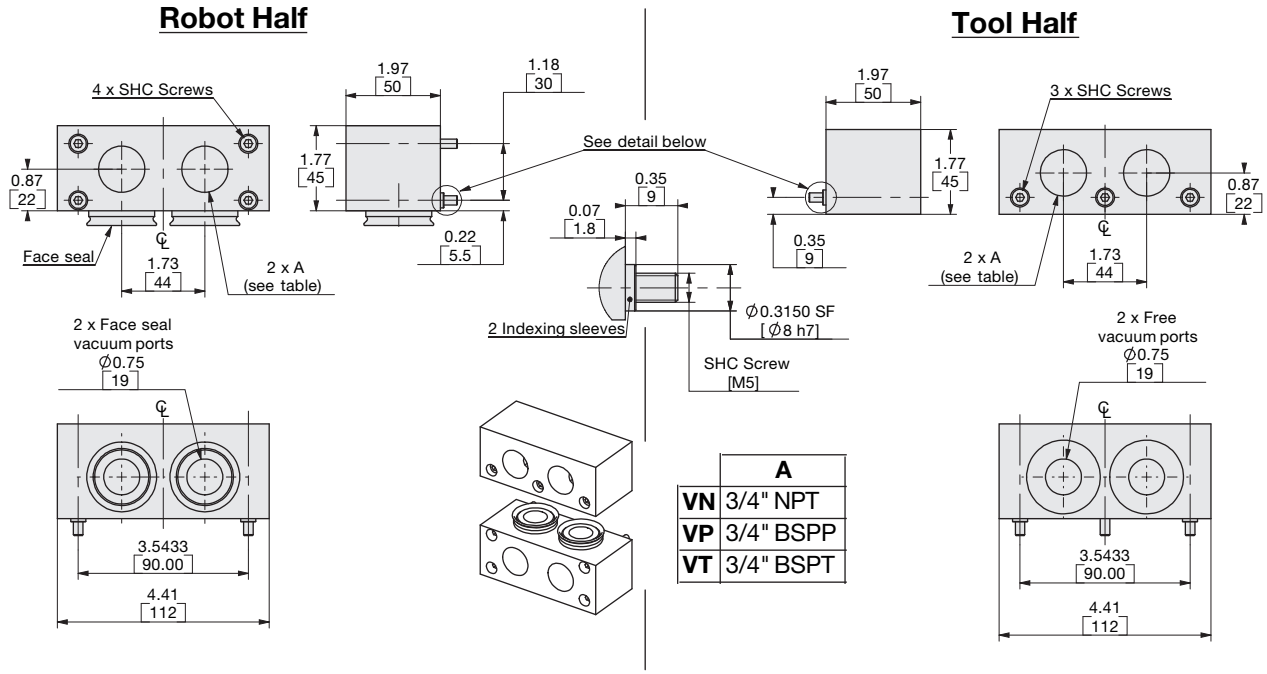
SIZE | SIDE B | SIDE D

PREMOUNTED	SEPARATE	
FN	KFN-RTP800	6 x 1/4" NPT Air Ports, Face Sealing, 10 bar
FP	KFP-RTP800	6 x 1/4" BSPP Air Ports, Face Sealing, 10 bar
FT	KFT-RTP800	6 x 1/4" BSPT Air Ports, Face Sealing, 10 bar

Module kits above include: Seals, indexing sleeves and hardware.

2 x 3/4" Vacuum Ports Module, Face Seal (VN, VP or VT)

For RQC/RTP-200 & RQC/RTP-400



	A
VN	3/4" NPT
VP	3/4" BSPP
VT	3/4" BSPT

ROBOT HALF MODULES:

How to Order Modules: RQC-200/400

BASIC MODEL - PORT - SIDE A - SIDE C

RQC - 200 - N - LP - [ ] - VN - [ ] - VN

SIZE - SENSING - SIDE B - SIDE D

PREMOUNTED	SEPARATE	
VN	KVN-RQC200	2 x 3/4" NPT Vacuum Ports, Face Sealing
VP	KVP-RQC200	2 x 3/4" BSPP Vacuum Ports, Face Sealing
VT	KVT-RQC200	2 x 3/4" BSPT Vacuum Ports, Face Sealing

ACCESSORIES:

	SLKT-405	2 x 3/4" Vacuum Module Seal Repair Kit

TOOL HALF MODULES:

How to Order Modules: RTP-200/400

BASIC MODEL - SIDE A - SIDE C

RTP - 200 - [ ] - VN - [ ] - VN

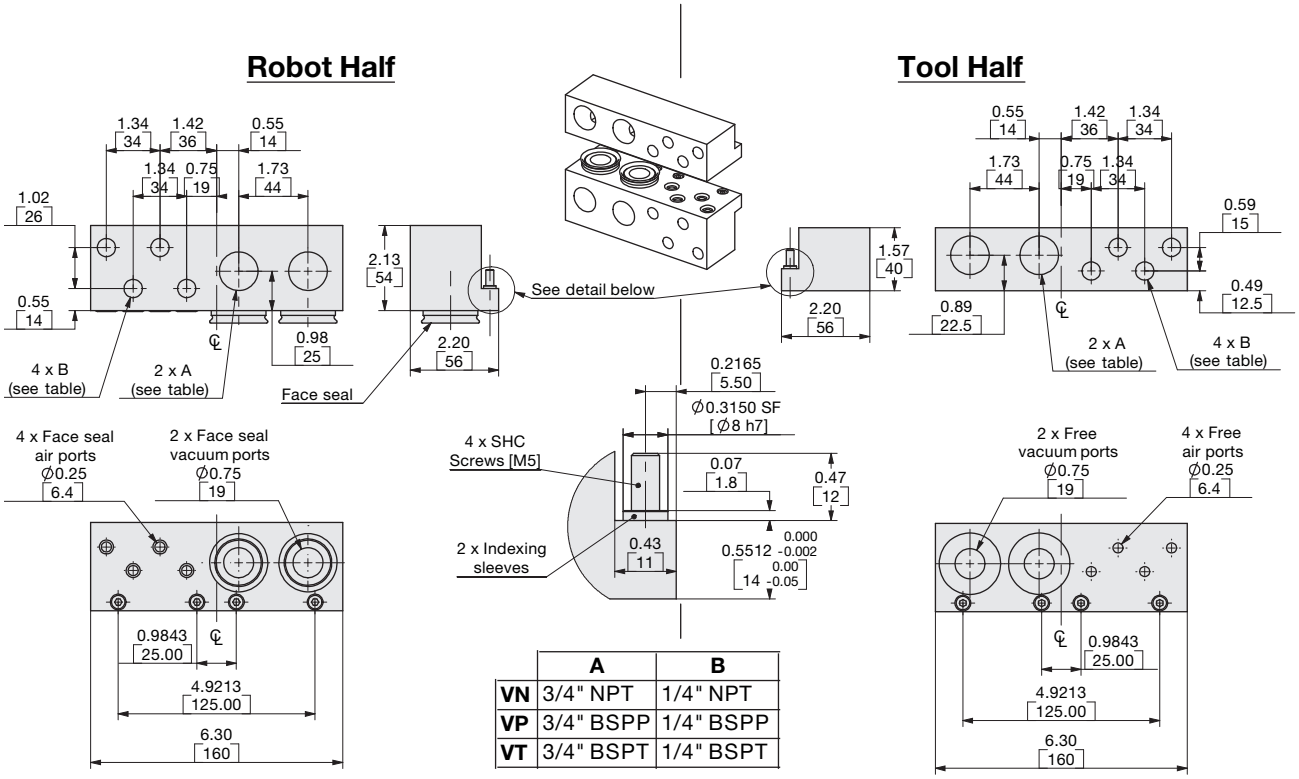
SIZE - SIDE B - SIDE D

PREMOUNTED	SEPARATE	
VN	KVN-RTP200	2 x 3/4" NPT Vacuum Ports, Face Sealing
VP	KVP-RTP200	2 x 3/4" BSPP Vacuum Ports, Face Sealing
VT	KVT-RTP200	2 x 3/4" BSPT Vacuum Ports, Face Sealing

Module kits above include: Seals, indexing sleeves and hardware.

2 x 3/4" Vacuum Ports Module, Face Seal (VN, VP or VT)

For RQC/RTP-800 & RQC/RTP-1200



	A	B
VN	3/4" NPT	1/4" NPT
VP	3/4" BSPP	1/4" BSPP
VT	3/4" BSPT	1/4" BSPT

ROBOT HALF MODULES:

How to Order Modules: RQC-800/1200

BASIC MODEL – PORT – SIDE A – SIDE C

RQC - 1200 A - LP - [ ] - VT - [ ] - VT

SIZE – SENSING – SIDE B – SIDE D

PREMOUNTED	SEPARATE	
VN	KVN-RQC800	2 x 3/4" Vacuum and 4 x 1/4" Air NPT Ports, Face Sealing
VP	KVP-RQC800	2 x 3/4" Vacuum and 4 x 1/4" Air BSPP Ports, Face Sealing
VT	KVT-RQC800	2 x 3/4" Vacuum and 4 x 1/4" Air BSPT Ports, Face Sealing

ACCESSORIES:

	SLKT-409	2 x 3/4" Vacuum and 4 x 1/4" Air Module Seal Repair Kit

TOOL HALF MODULES:

How to Order Modules: RTP-800/1200

BASIC MODEL – SIDE A – SIDE C

RTP - 1200 - [ ] - VT - [ ] - VT

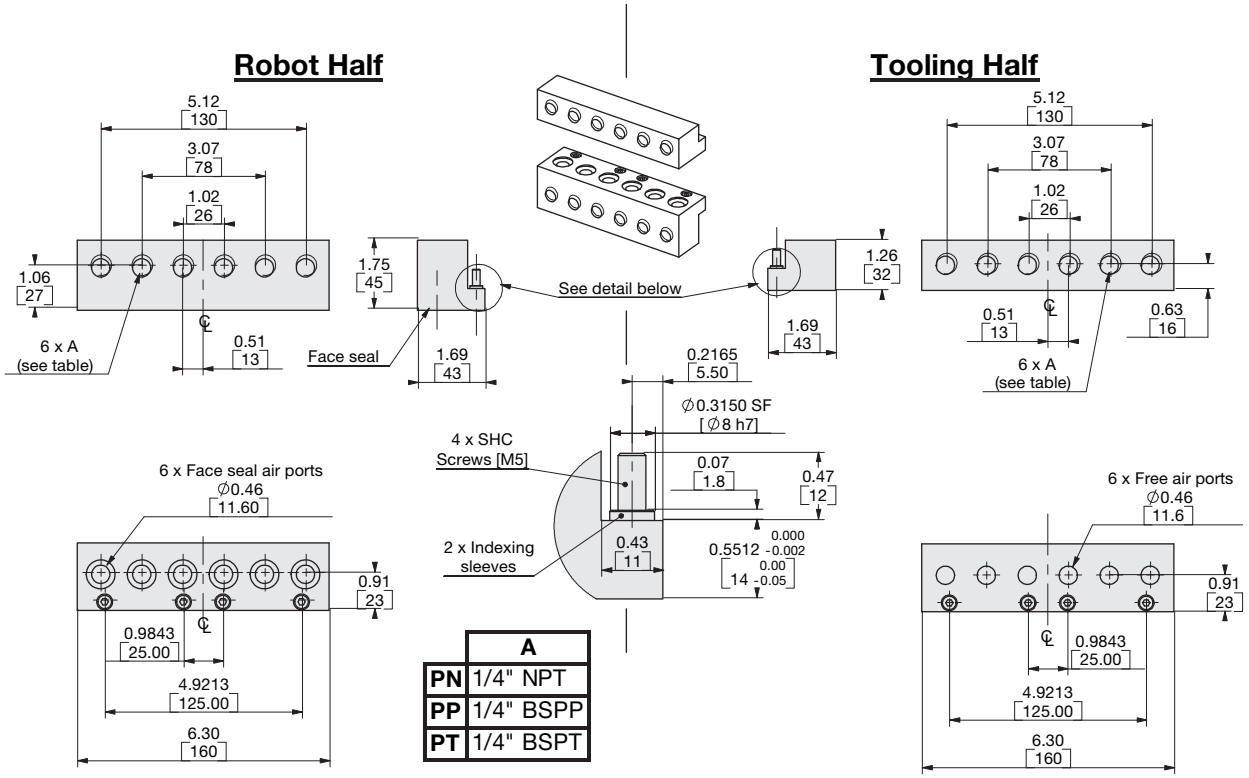
SIZE – SIDE B – SIDE D

PREMOUNTED	SEPARATE	
VN	KVN-RTP800	2 x 3/4" Vacuum and 4 x 1/4" Air NPT Ports, Face Sealing
VP	KVP-RTP800	2 x 3/4" Vacuum and 4 x 1/4" Air BSPP Ports, Face Sealing
VT	KVT-RTP800	2 x 3/4" Vacuum and 4 x 1/4" Air BSPT Ports, Face Sealing

Module kits above include: Seals, indexing sleeves and hardware.

6 x 1/4" Air Ports Module, Face Seal (PN, PP or PT)

For RQC/RTP-800 & RQC/RTP-1200



	A
PN	1/4" NPT
PP	1/4" BSPP
PT	1/4" BSPT

Maximum working pressure: 10 bar

ROBOT HALF MODULES:

How to Order Modules: RQC-800/1200

BASIC MODEL · PORT · SIDE A · SIDE C

RQC - 1200 A - LP - [ ] - PN - [ ] - PN

SIZE · SENSING · SIDE B · SIDE D

PREMOUNTED	SEPARATE	
PN	KPN-RQC800	6 x 1/4" NPT Air Ports, Self Sealing, 10 bar
PP	KPP-RQC800	6 x 1/4" BSPP Air Ports, Self Sealing, 10 bar
PT	KPT-RQC800	6 x 1/4" BSPT Air Ports, Self Sealing, 10 bar

ACCESSORIES:

	SLKT-410	6 x 1/4" Air Module Module Seal Repair Kit

TOOL HALF MODULES:

How to Order Modules: RTP-800/1200

BASIC MODEL · SIDE A · SIDE C

RTP - 1200 - [ ] - PN - [ ] - PN

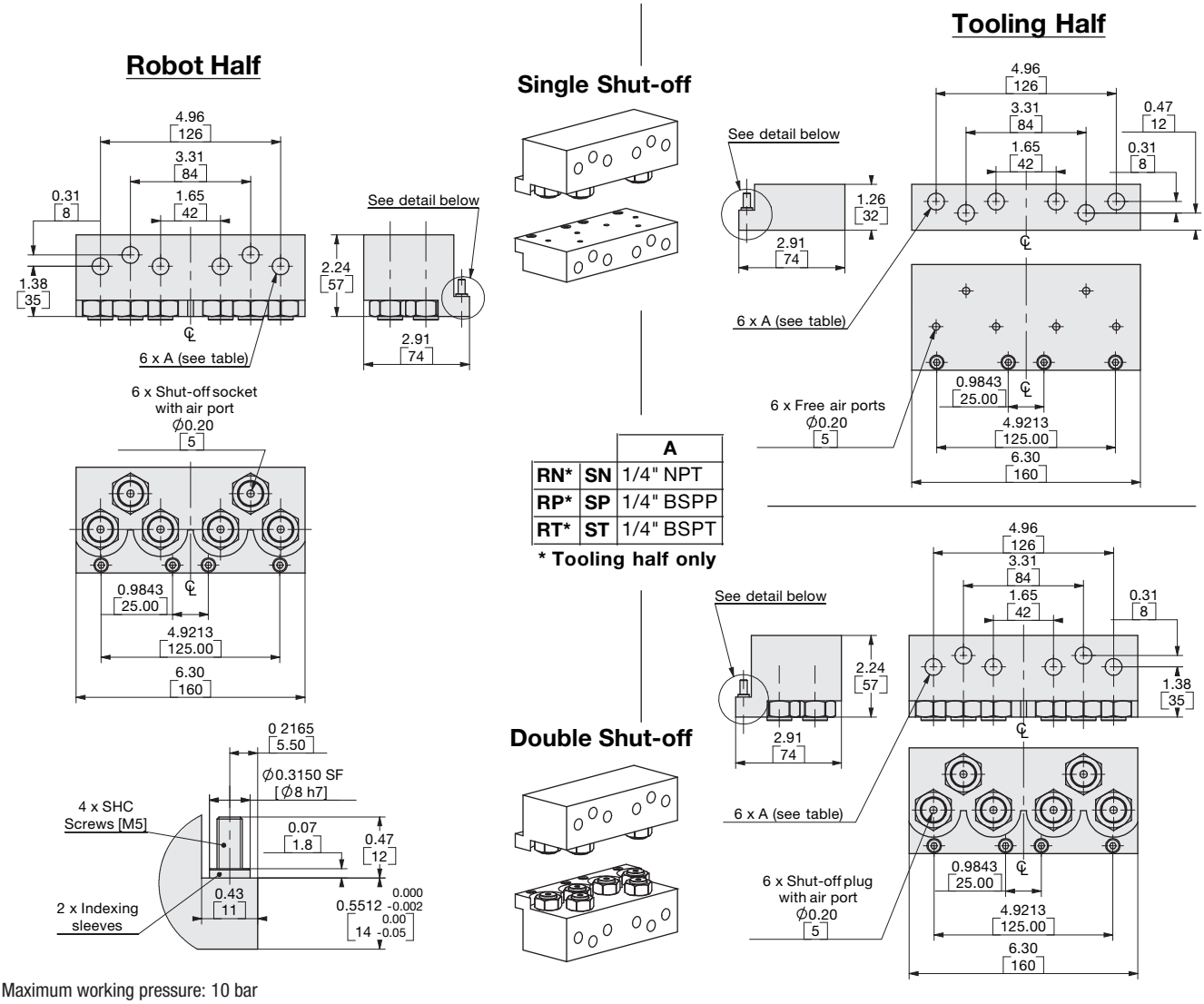
SIZE · SIDE B · SIDE D

PREMOUNTED	SEPARATE	
PN	KPN-RTP800	6 x 1/4" NPT Air Ports, Self Sealing, 10 bar
PP	KPP-RTP800	6 x 1/4" BSPP Air Ports, Self Sealing, 10 bar
PT	KPT-RTP800	6 x 1/4" BSPT Air Ports, Self Sealing, 10 bar

Module kits above include: Couplings, indexing sleeves and hardware.

6 x 1/4" Air Ports Module, Single Shut-Off Flat Face (RN, RP or RT) or Double Shut-Off Flat Face (SN, SP or ST)

For RQC/RTP-800 & RQC/RTP-1200



		A
RN*	SN	1/4" NPT
RP*	SP	1/4" BSPP
RT*	ST	1/4" BSPT

*** Tooling half only**

Maximum working pressure: 10 bar

ROBOT HALF MODULES:

How to Order Modules: RQC-800/1200

BASIC MODEL - PORT - SIDE A - SIDE C

RQC - 1200 - A - LP - [ ] - ST - [ ] - ST

SIZE - SENSING - SIDE B - SIDE D

PREMOUNTED	SEPARATE	
SN	KSN-RQC800	6 x 1/4" NPT Air Ports, Self Sealing, 10 bar
SP	KSP-RQC800	6 x 1/4" BSPP Air Ports, Self Sealing, 10 bar
ST	KST-RQC800	6 x 1/4" BSPT Air Ports, Self Sealing, 10 bar

TOOL HALF MODULES:

How to Order Modules: RTP-800/1200

BASIC MODEL - SIDE A - SIDE C

RTP - 1200 - [ ] - ST - [ ] - ST

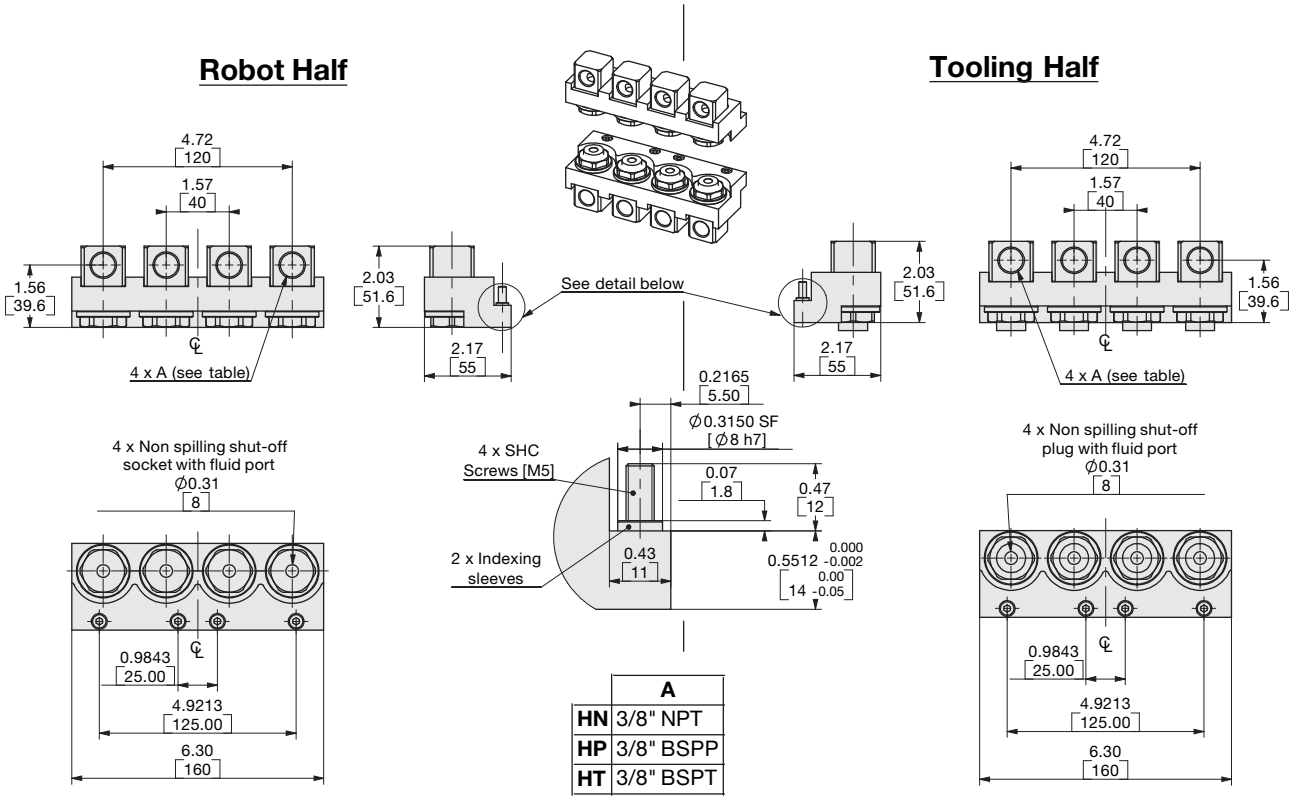
SIZE - SIDE B - SIDE D

PREMOUNTED	SEPARATE	
SN	KSN-RTP800	6 x 1/4" NPT Air Ports, Self Sealing, 10 bar
SP	KSP-RTP800	6 x 1/4" BSPP Air Ports, Self Sealing, 10 bar
ST	KST-RTP800	6 x 1/4" BSPT Air Ports, Self Sealing, 10 bar
RN	KRN-RTP800	6 x 1/4" NPT Air Ports, w/o Self Sealing, 10 bar
RP	KRP-RTP800	6 x 1/4" BSPP Air Ports, w/o Self Sealing, 10 bar
RT	KRT-RTP800	6 x 1/4" BSPT Air Ports, w/o Self Sealing, 10 bar

Module kits above include: Couplings, indexing sleeves and hardware.

4 x 3/8" Fluid Ports Module, Non Spilling Double Shut-Off (HN, HP or HT)

For RQC/RTP-800 & RQC/RTP-1200



	A
HN	3/8" NPT
HP	3/8" BSPP
HT	3/8" BSPT

Maximum working pressure: 100 bar

ROBOT HALF MODULES:

How to Order Modules: RQC-800/1200

BASIC MODEL – PORT – SIDE A – SIDE C

RQC - 800 M - LP - [ ] - HP - [ ] - HP

SIZE – SENSING – SIDE B – SIDE D

PREMOUNTED	SEPARATE	
HN	**KHN-RQC800**	4 x 3/8" NPT Fluid Ports, 100 bar
HP	**KHP-RQC800**	4 x 3/8" BSPP Fluid Ports, 100 bar
HT	**KHT-RQC800**	4 x 3/8" BSPT Fluid Ports, 100 bar

TOOL HALF MODULES:

How to Order Modules: RTP-800/1200

BASIC MODEL – SIDE A – SIDE C

RTP - 800 - [ ] - HP - [ ] - HP

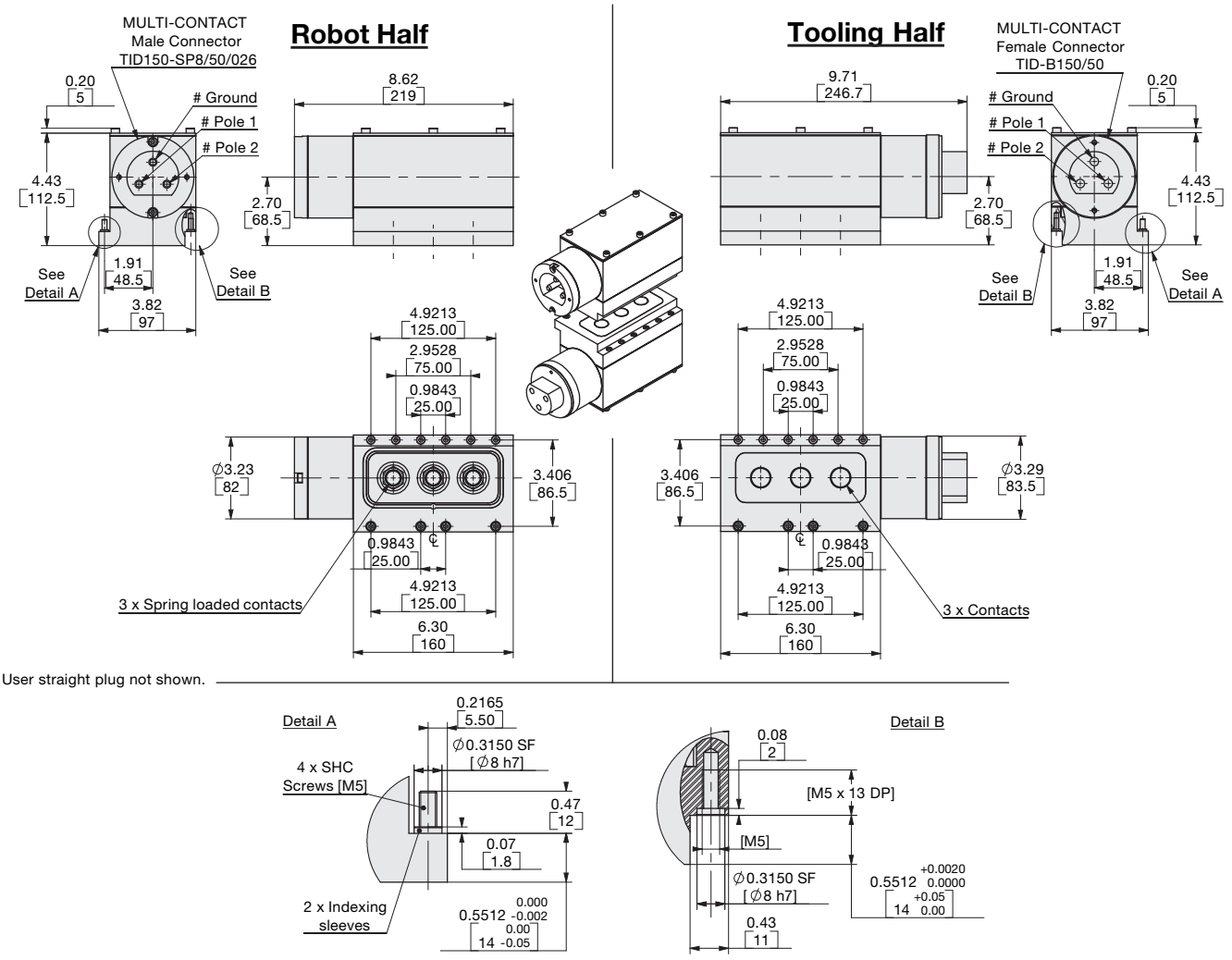
SIZE – SIDE B – SIDE D

PREMOUNTED	SEPARATE	
HN	**KHN-RTP800**	4 x 3/8" NPT Fluid Ports, 100 bar
HP	**KHP-RTP800**	4 x 3/8" BSPP Fluid Ports, 100 bar
HT	**KHT-RTP800**	4 x 3/8" BSPT Fluid Ports, 100 bar

Module kits above include: Couplings, indexing sleeves and hardware.

3 Contacts Module 180 Amp - 630 VAC (HI)

For RQC/RTP-800 & RQC/RTP-1200



ROBOT HALF MODULES:

How to Order Modules: RQC-800/1200

BASIC MODEL	PORT	SIDE A	SIDE C		
RQC - 800	M - LP	-	HI	-	HI
SIZE	SENSING	SIDE B		SIDE D	

PREMOUNTED	SEPARATE	
HI	KHI-RQC800	Welding Gun module (3 x 180 Amp spring loaded pin)

TOOL HALF MODULES:

How to Order Modules: RTP-800/1200

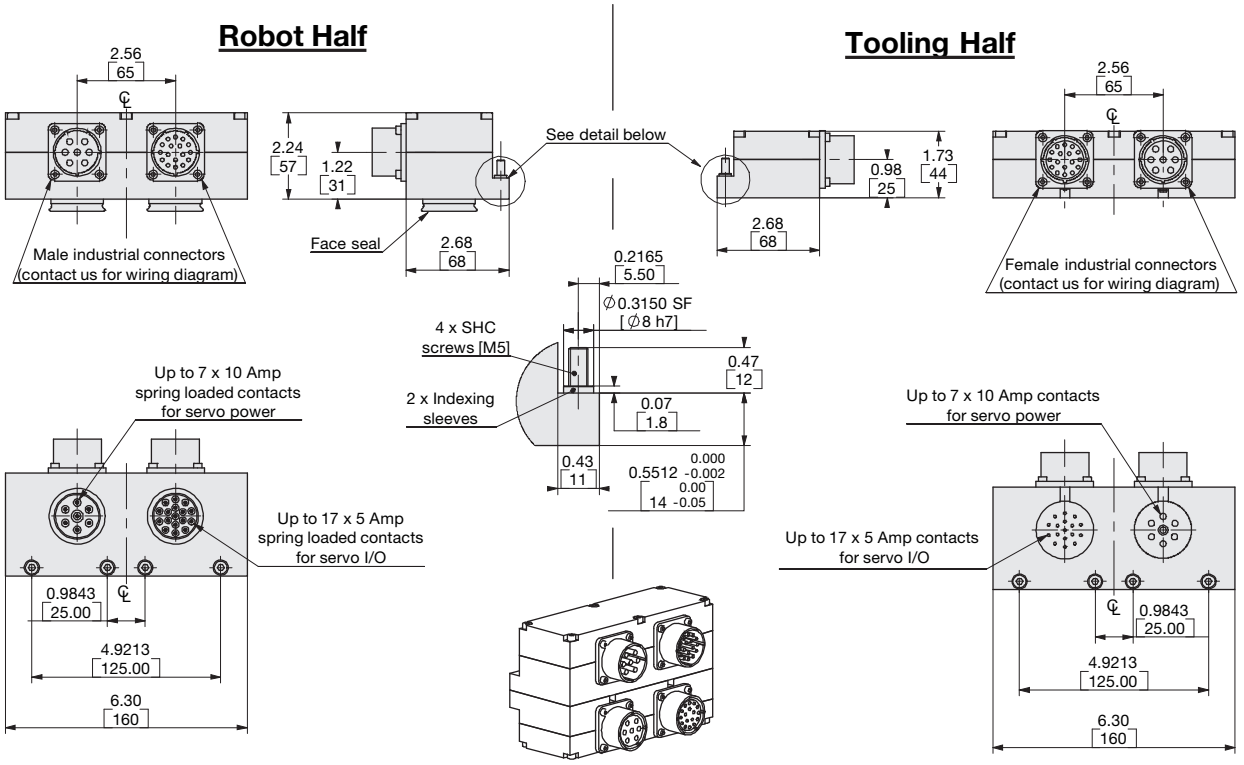
BASIC MODEL	SIDE A	SIDE C	
RTP - 800	-	HI -	HI
SIZE	SIDE B		SIDE D

PREMOUNTED	SEPARATE	
HI	KHI-RTP800	Welding Gun module (3 x 180 Amp spring loaded pin)

Module kits above include: Straight plug (without cable, crimp contacts), seals, indexing sleeves and hardware.

Servo Module (SRxx)

For RQC/RTP-800 & RQC/RTP-1200



User plugs not shown.

ROBOT HALF MODULES:

How to Order Modules: RQC-800/1200

BASIC MODEL		PORT		SIDE A		SIDE C		
RQC	- 1200	M	- LP	-	- SRxx	-	- SRxx	
	SIZE		SENSING		SIDE B			SIDE D

SRxx†* **KSRxx-RQC800**†* Servo Gun Module (with spring loaded pins)

†The xx is replaced by two digits depending on wiring request. Wiring may depend on robot and welding gun specifications. Please consult factory

*SRxx module can be mounted on the HI module to use with electric welding gun. Order HISRxx.

TOOL HALF MODULES:

How to Order Modules: RTP-800/1200

BASIC MODEL		SIDE A		SIDE C	
RTP	- 1200	-	- SRxx	-	- SRxx
	SIZE		SIDE B		SIDE D

PREMOUNTED **SEPARATE**

SRxx†* **KSRxx-RTP800**†* Servo Gun Module (with spring loaded pins)

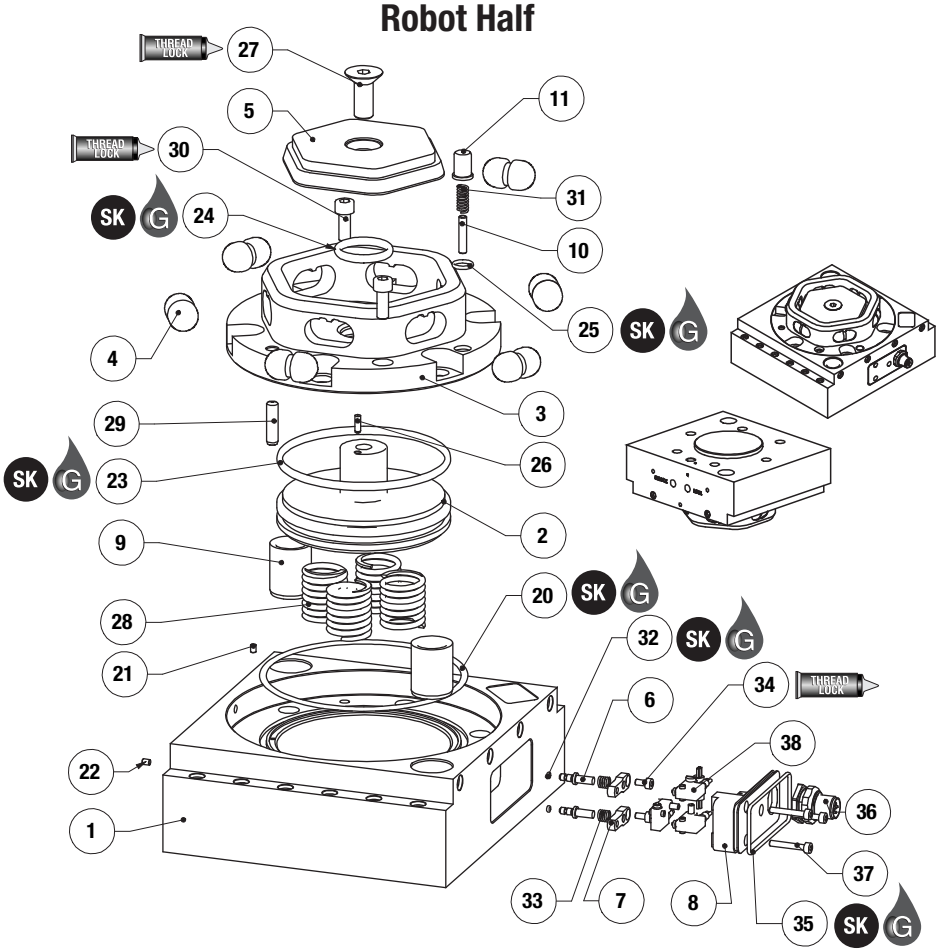
†The xx is replaced by two digits depending on wiring request. Wiring may depend on robot and welding gun specifications. Please consult factory

*SRxx module can be mounted on the HI module to use with electric welding gun. Order HISRxx.

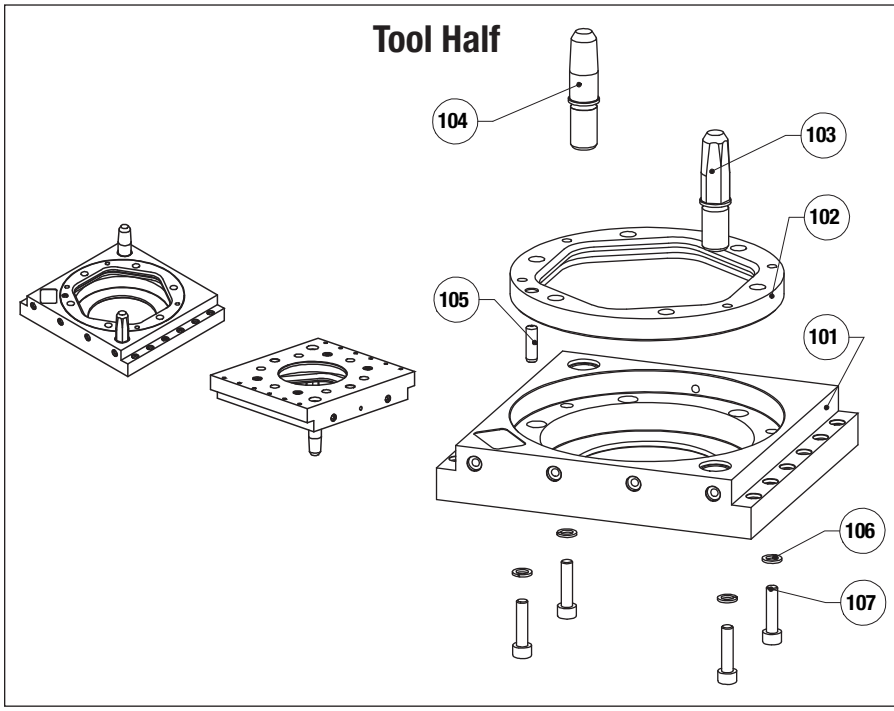
Module kits above include: Plugs, seals, indexing sleeves and hardware.

RQC Series Exploded View

Robot Half



Tool Half



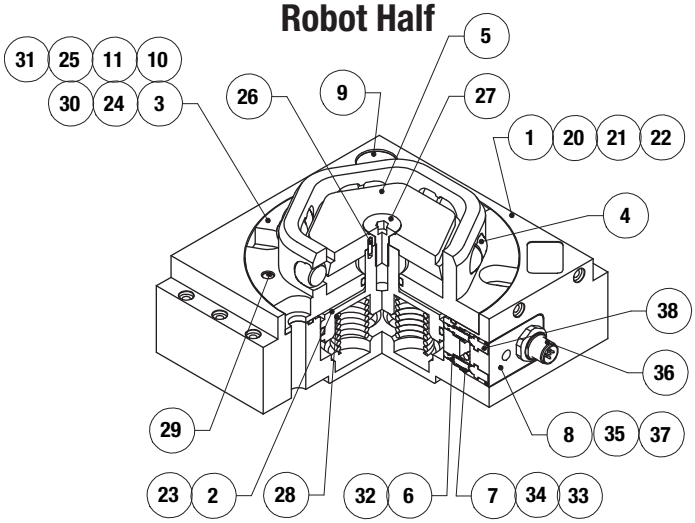
Item	Qty	Name
Robot Half		
01	1	Body
02	1	Piston
03	1	Pin Retainer
04	6	Pin
05	1	Ram
06	2	Sensing Pin
07	2	Stop
08	1	Bracket
09	2	Bushing
10	1	Pin
11	1	Target
20	1	Body, O-Ring
21	1	Body, Plug
22	1	Body, Plug
23	1	Piston, O-Ring
24	1	Retainer, O-Ring
25	1	Retainer, O-Ring
26	1	Piston, Pin
27	1	Piston, Screw
28	2 to 5	Body, Spring
29	1	Body, Pin
30	2	Retainer, SHC Screw
31	1	Target, Spring
32	2	Pin, O-Ring
33	2	Stop, Spring
34	2	Stop, SHC Screw
35	1	Bracket, O-Ring
36	1	Bracket, M12 Plug (optional)
37	3	Bracket, SHC Screw
38	1	Sensor Kit (optional)
Tool Half		
101	1	Body
102	1	Ring
103	1	Diamond Pin
104	1	Centering Pin
105	1	Pin
106	4	Lock Washer
107	4	SHC Screw

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

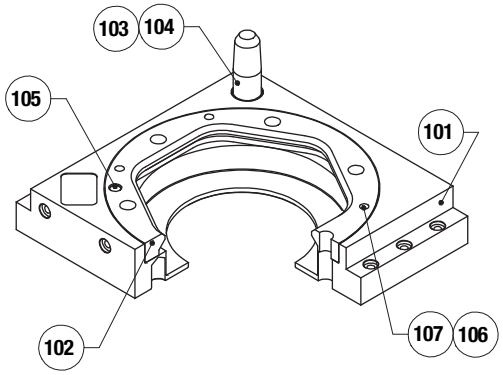
SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection

Robot Half



Tool Half



Item	Qty	Name
Robot Half		
01	1	Body
02	1	Piston
03	1	Pin Retainer
04	6	Pin
05	1	Ram
06	2	Sensing Pin
07	2	Stop
08	1	Bracket
09	2	Bushing
10	1	Pin
11	1	Target
20	1	Body, O-Ring
21	1	Body, Plug
22	1	Body, Plug
23	1	Piston, O-Ring
24	1	Retainer, O-Ring
25	1	Retainer, O-Ring
26	1	Piston, Pin
27	1	Piston, Screw
28	2 to 5	Body, Spring
29	1	Body, Pin
30	2	Retainer, SHC Screw
31	1	Target, Spring
32	2	Pin, O-Ring
33	2	Stop, Spring
34	2	Stop, SHC Screw
35	1	Bracket, O-Ring
36	1	Bracket, M12 Plug (optional)
37	3	Bracket, SHC Screw
38	1	Sensor Kit (optional)
Tool Half		
101	1	Body
102	1	Ring
103	1	Diamond Pin
104	1	Centering Pin
105	1	Pin
106	4	Lock Washer
107	4	SHC Screw

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices

Assembly Procedure - Robot Half

1) Lubricate and install seal (#20) into the body #1
2) Install the air port plugs (#21) and (#22) with thread-locker into the body (#1)
3) Press in the bushings (#9) into the body
4) Lubricate and install seals (#24) and (#25) - sizes 800 and 1200 only into the pin retainer (#3)
5) Insert the pins (#4) into the pin retainer (#3)
6) Lubricate and install seal (#23) onto the piston #2
7) Press in the pin (#26) into the piston
8) Completely insert the piston (#2) into the pin retainer (#3)
9) Sizes 800 and 1200 only: press in the pin (#10) into target (#11) and install the spring (#31) and insert this sub assembly into the pin retainer
10) Locate and insert the ram (#5) into the piston and fasten with screw (#27) with thread-locker
11) Insert the springs (#28) into the body
12) Press in the pin (#29) into the body
13) Locate and insert the pin, pin retainer and piston sub-assembly into the body and fasten with screws (#30) with thread-locker
14) Lubricate and install seals (#32) into the sensing pins (#6)
15) Insert the sensing pins into the body
16) Install the springs (#33) on the sensing pins
17) Mount stops (#7) with screws (#34) with thread-locker
18) Lubricate and install seal (#35) onto the bracket (#8)
19) Mount the optional sensor kit (#38) to the bracket
20) Mount the optional M12 plug (#36) to the bracket (#8) and connect its connector to the sensor kit connector (#38)
21) Insert the sensor, plug and bracket sub assembly into the body and fasten with screws (#37)

Assembly Procedure - Tool Half

1) Insert the ring (#102) with pressed-in pin #105 into the body (#101) and fasten with lock washer (#106) and screws (#107) with thread-locker
2) Press in the diamond pin (#103) into the body
3) Press in the pin (#104) into the body

TOOL CHANGER TERMINOLOGY

Accuracy – The actual positional differential of the locating dowels between two different Robot Halfs or Tool Halfs.

Air Module – Also called pneumatic ports. It refers to the component of the Tool Changer system that passes air through the QuickChange and Tool Plate to the End Effector. The air module is available in face-seal ports and is available with self-sealing or checked valves so that when the QuickChange uncouples, air does not leak and no extra valve is required to shut the air off.

Alignment Pins - Pins located on the tool plate that are used to align the Tool Changer to the Tool Plate during the coupling process. DE-STA-CO uses 2 alignment pins – one diamond shaped and one round. Alignment pins also limit moment about the Z axis.

Checked Valves – Valves designed for either fluid or pneumatic medium that have a self-sealing mechanism that automatically check the fluid when uncoupled. When a checked valve is used an additional valve is not required to shut-off the fluid or air upon disconnection.

Deflection – Defines the amount of movement (slop) expected under a given moment load. This measurement indicates the rigidity of the coupling mechanism.

DeviceNet – A communication protocol common to the North American automotive industry. A DeviceNet system communicates over a serial link (daisy chain) to each component on the system. A component can be anything from a proximity switch to a water saver to a robot controller. Each component has a specific address and can be polled for status by the system. A "communication bus" system like this eliminates the need for thousands of I/O wiring points because all the communication is done over a 5-wire (CAN HIGH, CAN LOW, V+, V-, and DRAIN) cable.

Electrical Module – Also called an I/O Block or I/O Module, it is a component within the QuickChange system. Electrical I/O (Input/Output) communication is done through this module. Also, internal switches for Couple/Uncouple/Ready-to-Couple may be wired to this module.

Face-Seal Ports – Refers to ports used to pass air or vacuum through the Tool Changer such as air for operating the retract feature of a spot weld gun or air to operate a venture vacuum pump on a material handling End Effector. The face-seal ports do not stop air or vacuum flow when the Tool Changer uncouples. They require an additional air valve to shut the air or vacuum off before uncoupling. Face-seal ports only have an O-ring to prevent air or vacuum loss when the Tool Changer is coupled.

Locking Mechanism – The mechanism that locks the Tool Changer to the Tool Plate. It consists of a piston, ram and rollers (rolling pins).

Manual Tool Changer – A Tool Changer that requires manual intervention to couple or uncouple.

Maximum Compression – Refers to the maximum force that can be applied to the Tool Changer in a –Z direction. Not very important for most applications.

Maximum Moment (Mx, My, Mz) – A very important sizing rating because it takes into account the dynamic loads created by the motion of the robot. Mx, My and Mz are the moment created when rotating about the X, Y and Z axis respectively.

Maximum Payload – The maximum amount of weight the Tool Changer can handle. A payload rating is used to give the design engineer a general reference for the size of Tool Changer that should be used for an application.

Maximum Tensile – The maximum amount of pull away (something in tension) that the QuickChange can tolerate before failure.

Moment Rating (N-M, In-Lbs) – The rating given to a QuickChange to describe the maximum amount of moment that the unit can handle and still maintain the published repeatability and performance specifications.

Offset – Refers to total Coupled Height of the Tool Changer and Tool Plate. It is important in calculation of moment as a function of Robot Acceleration. The more offset you have, the more moment that will be created as the Robot accelerates. Offset may limit maximum Payload allowed.

Payload – Refers to the weight of the Tool Changer and/or End Effector and part to be handled by the robot.

Payload Rating (Lbs, Kg) – Refers to the maximum weight that the robot or Tool Changer can carry safely. Maximum Payload Rating is limited by and needs to consider Offset, weight and envelope size of the End Effector and part to be handled as well as robot acceleration in order to calculate proper moment load.

Ready-To-Couple – A switch that indicates the QuickChange is in the proper orientation to couple with the Tool Plate. It indicates that the Tool Changer is close enough to the Tool Plate to activate the Locking Mechanism. It is important for the robot controller to make decisions such as drop-off End Effector, Couple tool, Uncouple tool. Also refers to a switch that reads if the Tool Changer is in a Ready-to-couple position, that is, in close proximity to the Tool Plate (0.100 inch).

Repeatability – The ability to go back to a pre-programmed point. In the context of a Tool Changer this indicates the ability to couple with precision so that additional misalignment is not introduced into the tooling.

Robot Acceleration – Refers to the rate of increase in speed at which the robot will operate. Important for calculating maximum moment rating or maximum payload rating when considering offset, envelope size, weight of end effector and weight of part.

Self-Sealing – A port that seals itself when it uncouples from its mating half. Conversely, the port automatically opens when it couples with it mating half.

Servo Module – Refers to a component within the QuickChange system for special applications using a servo-powered spot weld gun or servo-powered slide/cylinder. Electrical I/O (Input/Output) communication is also done through this module. Bolts on to the tool changer where the Electrical Module would normally mount.

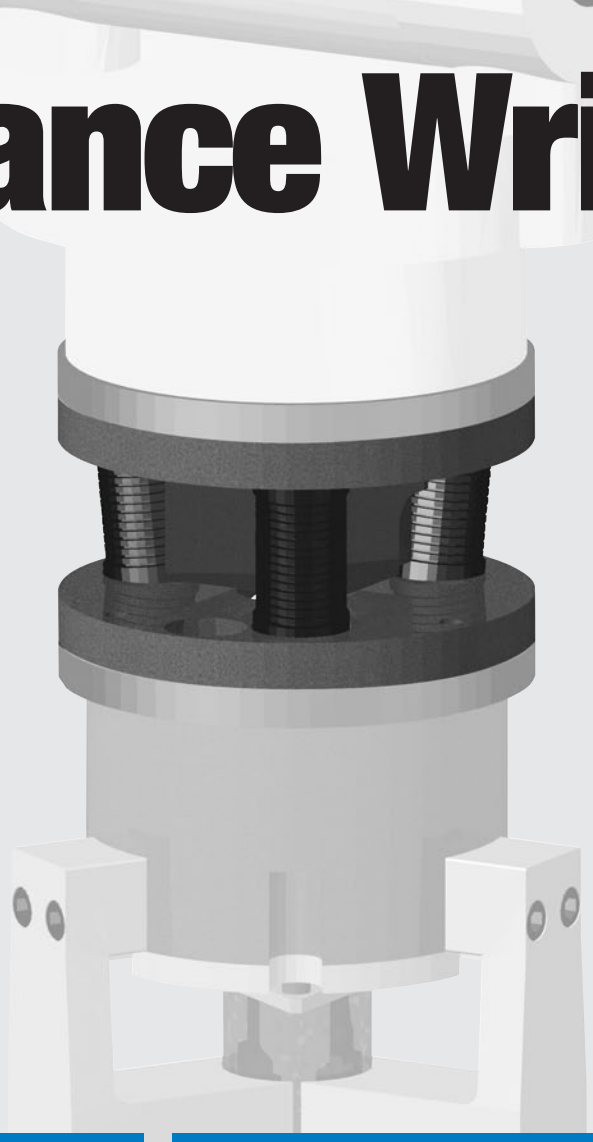
Water Module – Refers to the component of the Gun Changer system that passes cooling water through the QuickChange and Tool Plate to and from the spot weld gun, transformer, kickless cables and shunts. The water module has self-sealing or checked ports so that when the QuickChange uncouples, water does not leak and no extra valve is required to shut the water off.

Weld Module – Also called a 200 Amp Module, it is a component within the Gun Changer system. Weld Current is passed from the Weld Controller to the transformer for use by the spot weld gun. The DE-STA-CO Weld Module is rated for the maximum current rating of 200 Amps at 100% duty cycle (constant power on).

Vacuum Module – Refers to the component of the Tool Changer system that passes vacuum and air through the QuickChange and Tool Plate to the End Effector. The vacuum module comes standard with face-seal ports. An extra valve is required to shut the vacuum and air off.

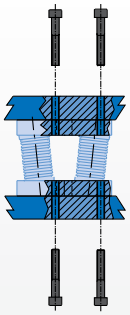
DESIGN NOTES

Compliance Wrist

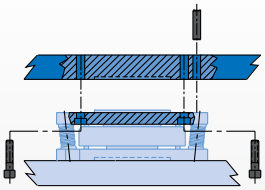


- **Robotic applications:** Excellent for inserting components that may be mis-aligned or skewed with respect to mating components. Reduces part jamming which could transmit excessive forces back to the robot .
- **Automation applications:** For insertion applications where part positioning may be less than precise. Compliance in torsion, bending and lateral directions allow this devise to compensate for part placing inaccuracies.

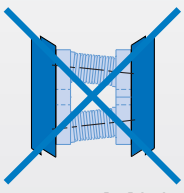
Mounting Information:



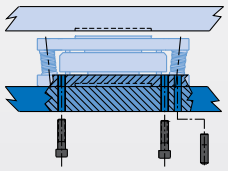
On size 50-80, robot side has tapped holes for mounting



On size 125-300, robot side has counter bored holes for mounting with a dowel hole and raised boss for location



Not recommended in horizontal axis applications where the weight attached to the tool side can deflect the device



On all sizes tool side has tapped holes for mounting. Sizes 125-300 have pilot hole and dowel hole for positioning

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Internally Lubricated Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-20°~180° F**	**-30°~80° C**

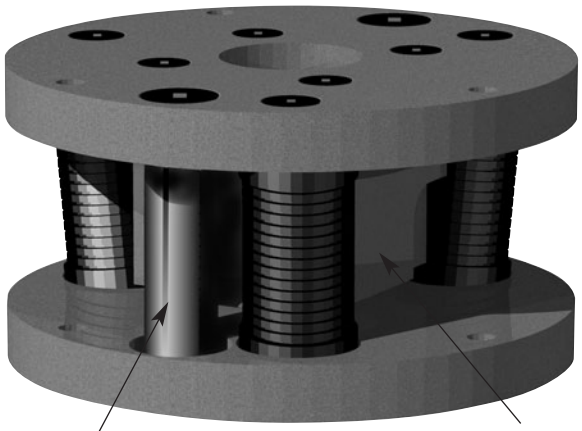
Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***
Field Repairable	**Yes**
Seal Repair Kits Available	**Yes**

*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features

Quality Components
Anodized aluminum components
Elements are cutting fluid and coolant resistant

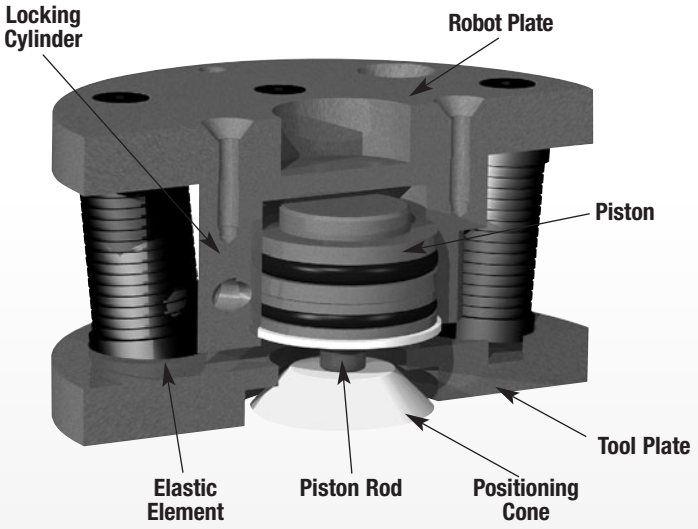
Lifetime Lubrication
Life time cylinder and locking mechanism lubrication

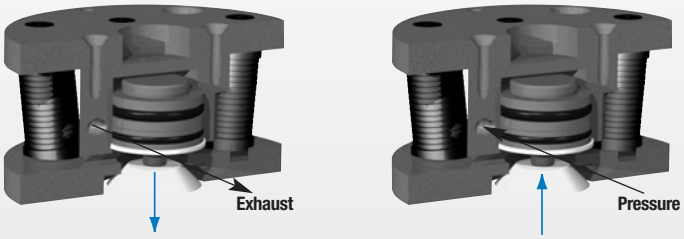


Overload Pins
Overload pins (sizes 80, 100 and 300) and anti-rotation device (sizes 160 and larger)

Locking Cylinder
Locking cylinder (standard on 125 and larger) creates a rigid coupling between the robot and tool pla tes

Operating Principle





- Two aluminum plates are connected by elastomeric elements which allo w lateral, angular, and rotational movement between them.
- Larger units with locking cylinder allow the two plates to be rigidly connected to one another during acceleration or deceleration of the payload.

Style-RCW Compliance Wrist

Size-50

Style:	**RCW-50-3**
Max. Payload:	2.4 lbs. 1.0 Kg
Lateral Comp. (X/Y):	0.118 in. 3 mm
Weight:	0.57 lbs. 0.26 Kg

See Page **7.58**

Style-RCW Compliance Wrist

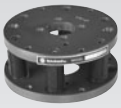
Size-80

Style:	**RCW-80-3**
Max. Payload:	5 lbs. 2.4 Kg
Lateral Comp. (X/Y):	0.118 in. 3 mm
Weight:	0.57 lbs. 0.26 Kg

See Page **7.59**

Style-RCW Compliance Wrist

Size-100



Style:	**RCW-100-4,-6**
Max. Payload:	8 lbs. 3.5 Kg
Lateral Comp. (X/Y):	0.118 in. 3 mm
Weight:	1.0 lbs. 0.4 Kg

See Pages **7.60 & 7.61**

Style-RCW Compliance Wrist

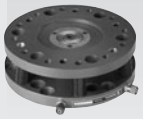
Size-125

Style:	**RCW-125-6**
Max. Payload:	15 lbs. 7 Kg
Lateral Comp. (X/Y):	0.079 in. 2 mm
Weight:	2.6 lbs. 1.2 Kg

See Page **7.62**

Style-RCW Compliance Wrist

Size-160



Style:	**RCW-160-6,-8**
Max. Payload:	40 lbs. 18 Kg
Lateral Comp. (X/Y):	0.079 in. 2 mm
Weight:	3.7 lbs. 1.7 Kg

See Pages **7.63 & 7.64**

Style-RCW Compliance Wrist

Size-200

Style:	**RCW-200-12**
Max. Payload:	115 lbs. 52 Kg
Lateral Comp. (X/Y):	0.118 in. 3 mm
Weight:	18.3 lbs. 8.3 Kg

See Pages **7.65**

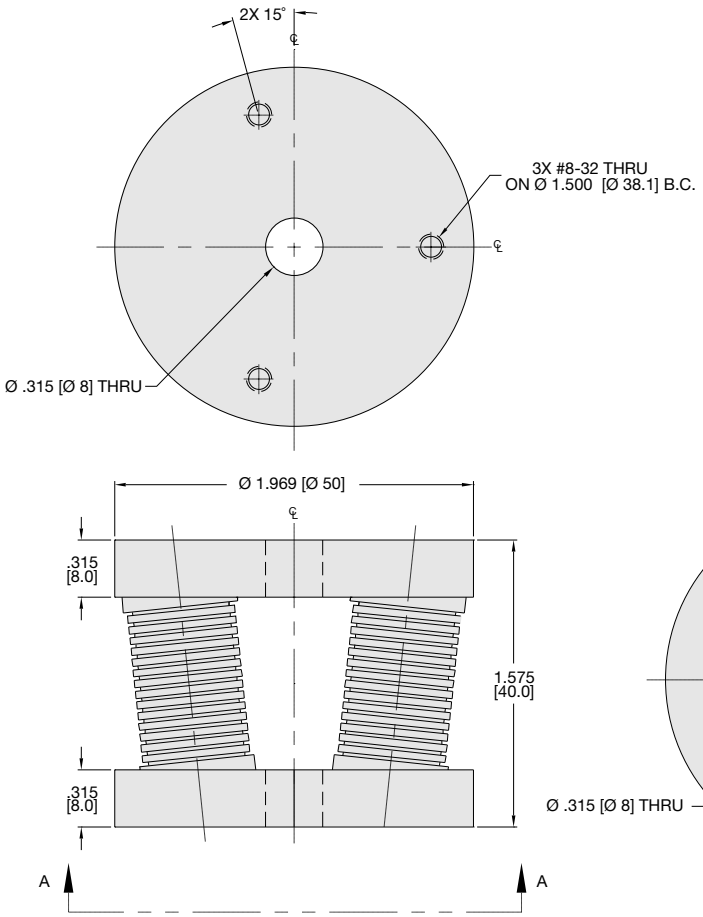
Style-RCW Compliance Wrist

Size-300

Style:	**RCW-300-12**
Max. Payload:	330 lbs. 150 Kg
Lateral Comp. (X/Y):	0.098 in. 2 mm
Weight:	12.8 lbs. 5.8 Kg

See Page **7.66**

COMPLIANCE WRIST RCW-50-3



Specifications	RCW-50-3	
Maximum Payload	2.4 lbs	1.1 Kg
Misalignment Capability	±0.08 in.	±2 mm
Maximum Rotation	±2°	±2°
Weight	0.57 lbs.	0.26 Kg
Temperature Range	-20°~180° F	-30°~80° C

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
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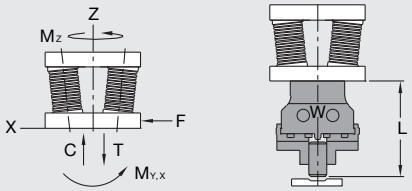


Loading Capacity	Imperial	Metric
Maximum Force **F**	18 lbs.	80 N
Maximum Tension **T**	90 lbs.	400 N
Maximum Compressive **C**	90 lbs.	400 N
Maximum Moment M_X	177 in.-lbs.	20 Nm
Maximum Moment M_Y	177 in.-lbs.	20 Nm
Maximum Moment M_Z	177 in.-lbs.	20 Nm
Maximum Payload **W**	2.4 lbs.	1.1 Kg

Stiffness Information

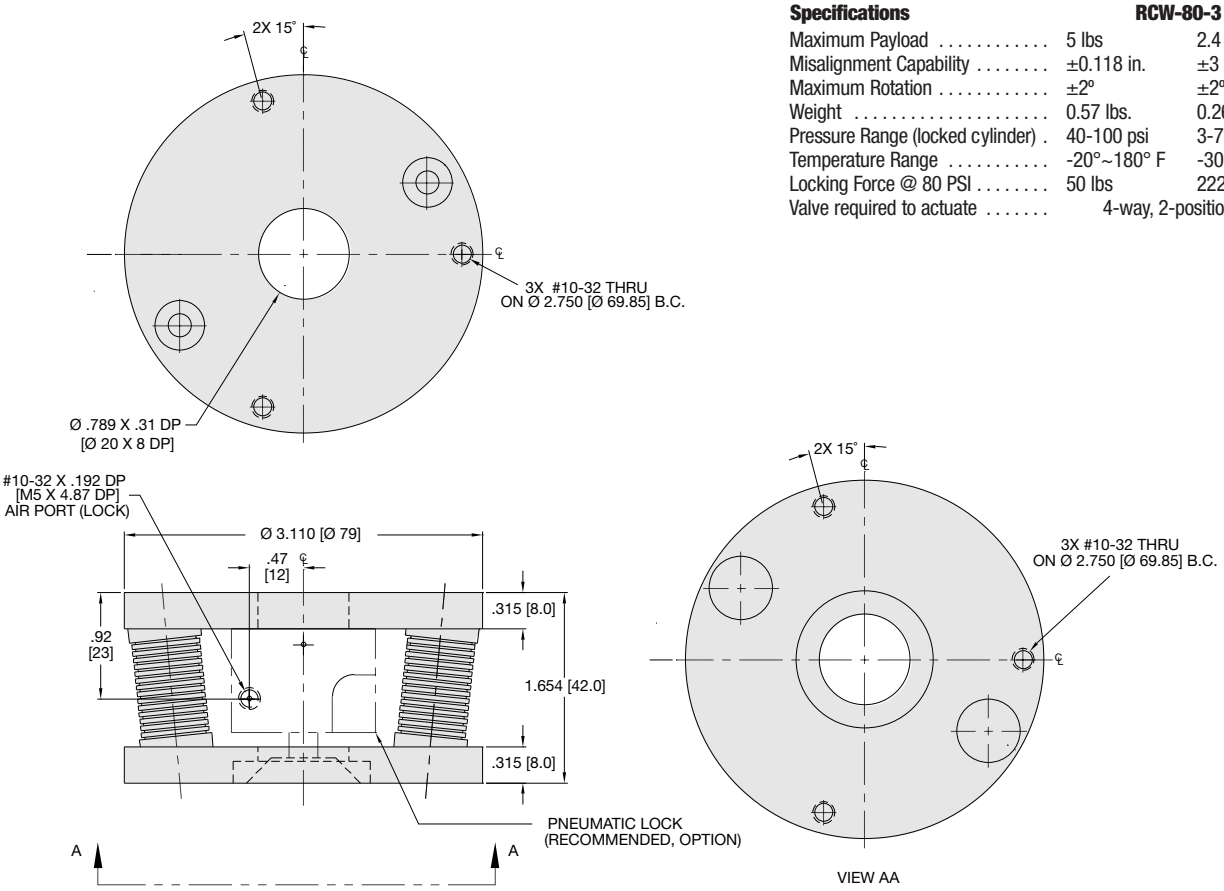
	Imperial	Metric
Torsional Stiffness about **Z** axis	157 in-lbs/deg	17 N-m/deg
Lateral Stiffness (**X** and **Y** axis)	228 lbf/in	40 N/mm
Axial Stiffness (compression **Z** axis)	9136 lbf/in	1600 N/mm
Insertion Point **L Max**	2 in.	50 mm

How to Order:

BASIC MODEL

RCW-50-3

Specifications	RCW-80-3	
Maximum Payload	5 lbs	2.4 Kg
Misalignment Capability	±0.118 in.	±3 mm
Maximum Rotation	±2º	±2º
Weight	0.57 lbs.	0.26 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI	50 lbs	222 N
Valve required to actuate	4-way, 2-position	



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
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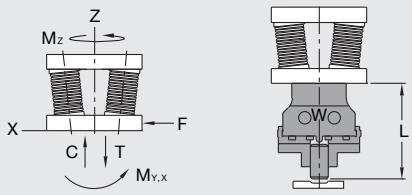


Loading Capacity†	Imperial	Metric
Maximum Force **F**	18 lbs.	80 N
Maximum Tension **T**	90 lbs.	400 N
Maximum Compressive **C**	90 lbs.	400 N
Maximum Moment **Mx**	177 in.-lbs.	20 Nm
Maximum Moment **My**	177 in.-lbs.	20 Nm
Maximum Moment **Mz**	177 in.-lbs.	20 Nm
Maximum Payload **W**	5 lbs.	2.4 Kg

Stiffness Information

	Imperial	Metric
Torsional Stiffness about **Z** axis	248 in-lbs/deg	28 N-m/deg
Lateral Stiffness (**X** and **Y** axis)	228 lbf/in	40 N/mm
Axial Stiffness (compression **Z** axis)	9136 lbf/in	1600 N/mm
Insertion Point **L Max**	4 in.	100 mm

How to Order:

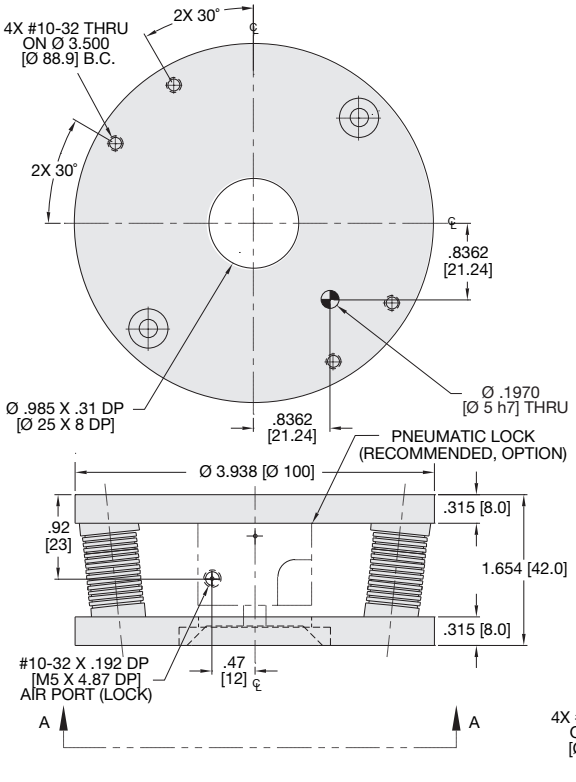
BASIC MODEL — PNEUMATIC LOCKING

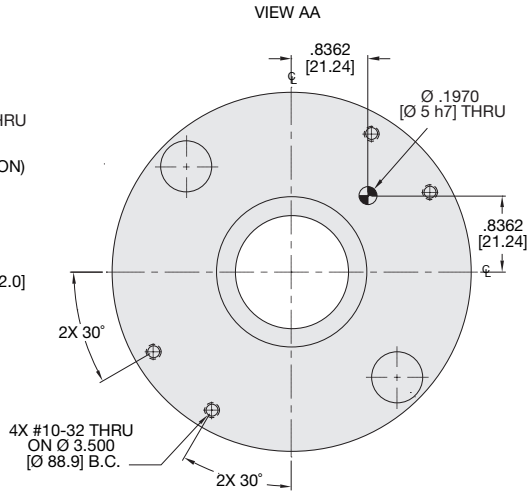
RCW-80-3 - 0V - L

OVERLOAD PINS

COMPLIANCE WRIST RCW-100-4

Specifications	RCW-100-4	
Maximum Payload	8 lbs	3.5 Kg
Misalignment Capability	±0.118 in.	±3 mm
Maximum Rotation	±2º.	±2º
Weight	1.0 lbs.	0.4 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI	80 lbs	355 N
Valve required to actuate	4-way, 2-position	





UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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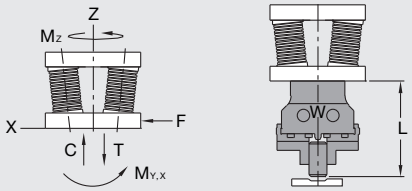


Loading Capacity†	Imperial	Metric
Maximum Force **F**	34 lbs.	150 N
Maximum Tension **T**	124 lbs.	550 N
Maximum Compressive **C**	124 lbs.	550 N
Maximum Moment **Mx**	177 in.-lbs.	20 Nm
Maximum Moment **My**	177 in.-lbs.	20 Nm
Maximum Moment **Mz**	177 in.-lbs.	20 Nm
Maximum Payload **W**	8 lbs.	3.5 Kg

Stiffness Information

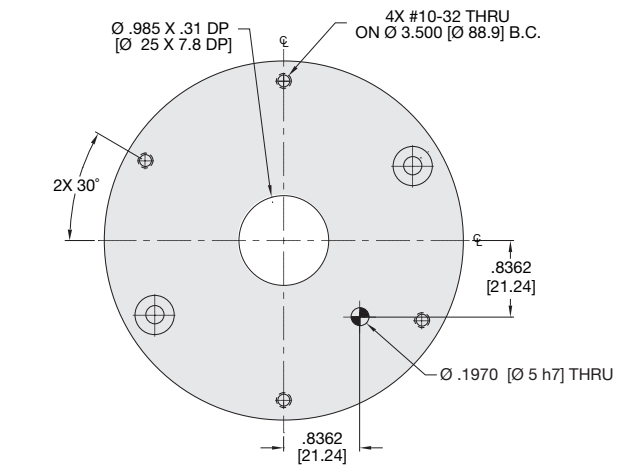
	Imperial	Metric
Torsional Stiffness about **Z** axis	412 in-lbs/deg	46 N-m/deg
Lateral Stiffness (**X** and **Y** axis)	286 lbf/in	50 N/mm
Axial Stiffness (compression **Z** axis)	11991 lbf/in	2100 N/mm
Insertion Point **L Max**	6 in.	150 mm

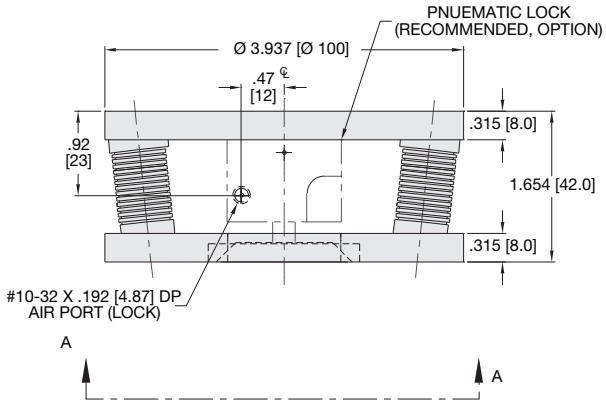
How to Order:

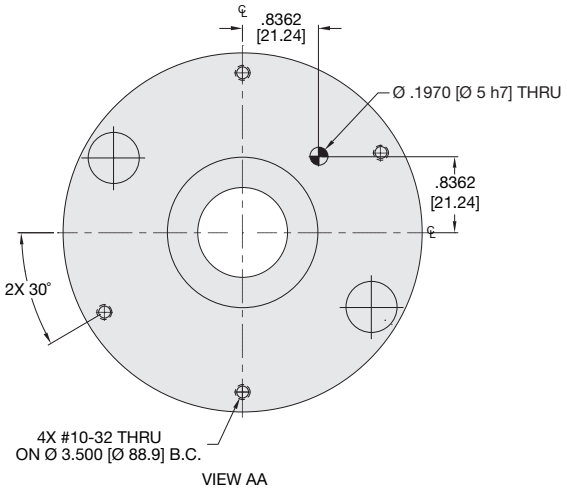
BASIC MODEL — PNEUMATIC LOCKING

RCW-100-4 - 0V - L

OVERLOAD PINS







Specifications	RCW-100-6	
Maximum Payload	8 lbs	3.5 Kg
Misalignment Capability	±0.118 in.	±3 mm
Maximum Rotation	±2°	±2°
Weight	1.0 lbs.	0.4 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI	80 lbs	355 N
Valve required to actuate	4-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
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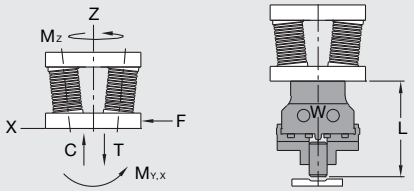


Loading Capacity†	Imperial	Metric
Maximum Force **F**	55 lbs.	240 N
Maximum Tension **T**	180 lbs.	800 N
Maximum Compressive **C**	180 lbs.	800 N
Maximum Moment **Mx**	265 in.-lbs.	30 Nm
Maximum Moment **My**	265 in.-lbs.	30 Nm
Maximum Moment **Mz**	265 in.-lbs.	30 Nm
Maximum Payload **W**	8 lbs.	3.5 Kg

Stiffness Information

	Imperial	Metric
Torsional Stiffness about **Z** axis	628 in-lbs/deg	71 N-m/deg
Lateral Stiffness (**X** and **Y** axis)	457 lbf/in	80 N/mm
Axial Stiffness (compression **Z** axis)	18275 lbf/in	3200 N/mm
Insertion Point **L Max**	6 in.	150 mm

How to Order:

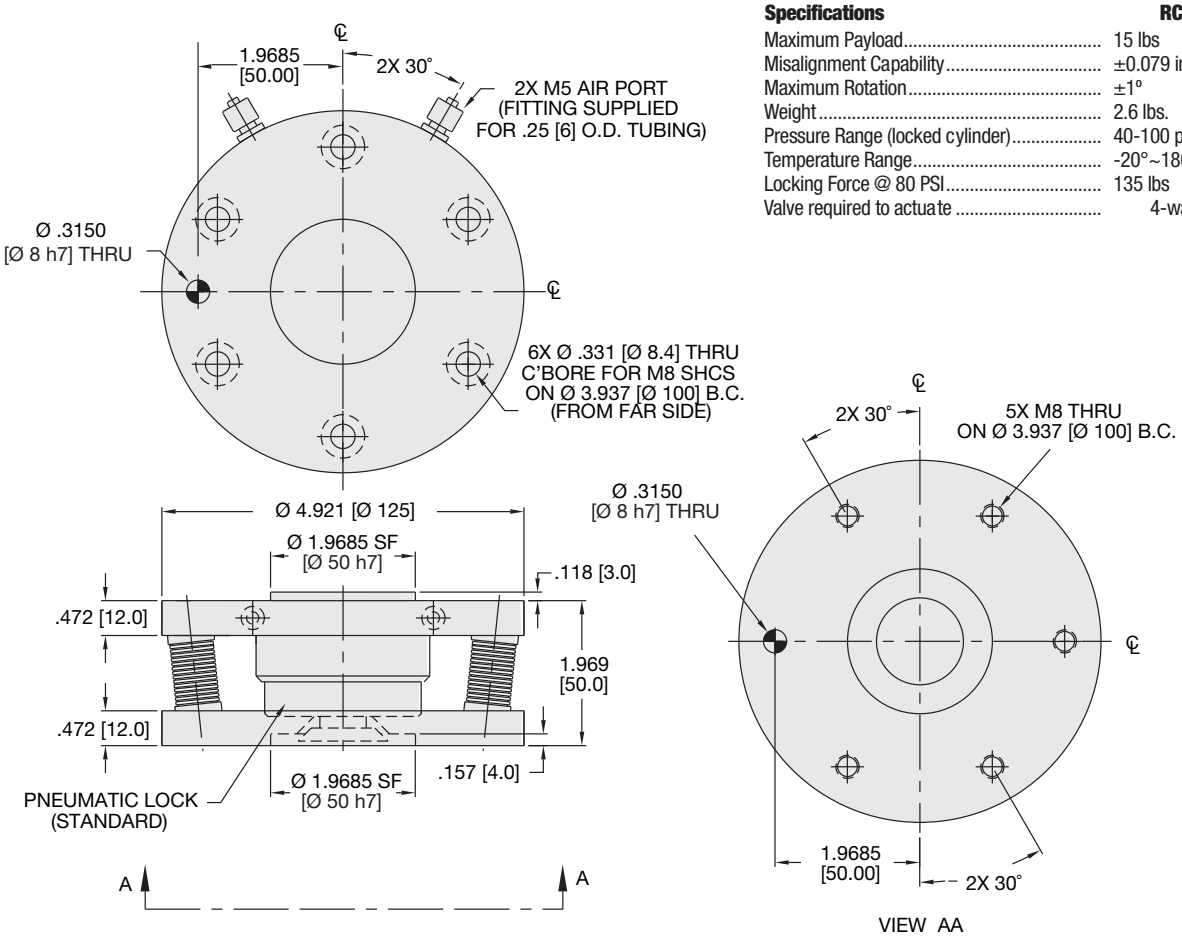
BASIC MODEL — PNEUMATIC LOCKING

RCW-100-6 - 0V - L

OVERLOAD PINS

COMPLIANCE WRIST RCW-125-6

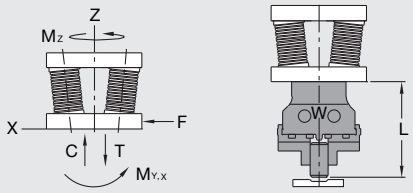
Specifications	RCW-125-6	
Maximum Payload	15 lbs	7 Kg
Misalignment Capability	±0.079 in.	±2 mm
Maximum Rotation	±1°	±1°
Weight	2.6 lbs.	1.2 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI	135 lbs	600 N
Valve required to actuate	4-way, 2-position	



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

Loading Information



Loading Capacity†

	Imperial	Metric
Maximum Force **F**	36 lbs.	160 N
Maximum Tension **T**	180 lbs.	800 N
Maximum Compressive **C**	180 lbs.	800 N
Maximum Moment **Mx**	265 in.-lbs.	30 Nm
Maximum Moment **My**	265 in.-lbs.	30 Nm
Maximum Moment **Mz**	265 in.-lbs.	30 Nm
Maximum Payload **W**	15 lbs.	7 Kg

Stiffness Information

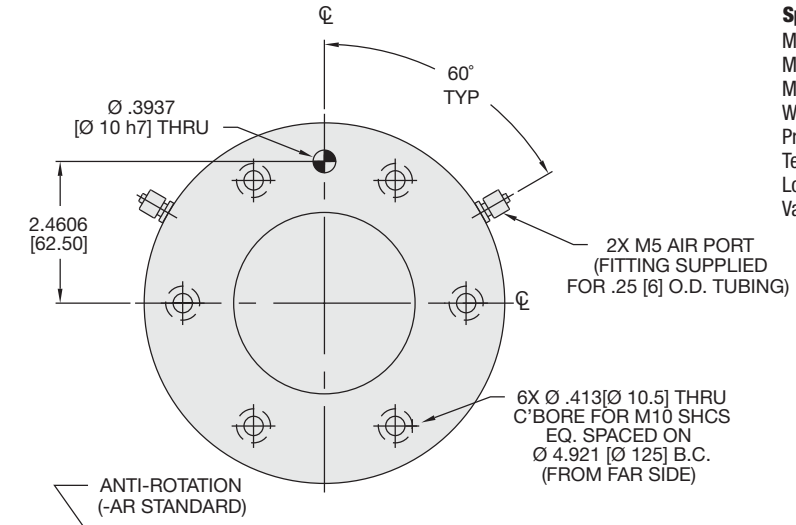
	Imperial	Metric
Torsional Stiffness about **Z** axis	785 in-lbs/deg	88 N-m/deg
Lateral Stiffness (**X** and **Y** axis)	457 lbf/in	80 N/mm
Axial Stiffness (compression **Z** axis)	18275 lbf/in	3200 N/mm
Insertion Point **L Max**	8 in.	200 mm

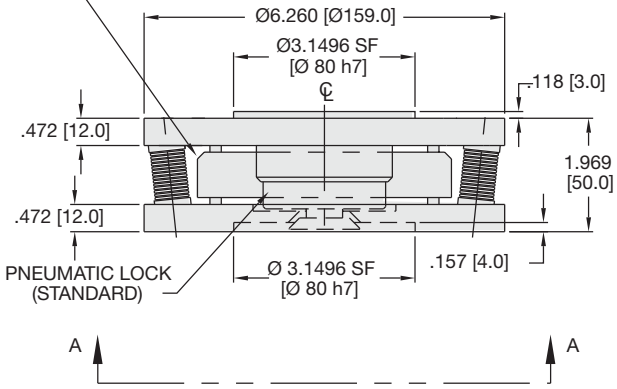
How to Order:

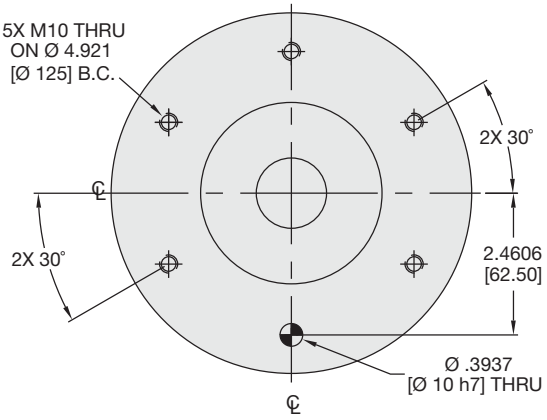
BASIC MODEL

RCW-125-6

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-227**	**1**







VIEW AA

Specifications	RCW-160-6	
Maximum Payload	40 lbs	18 Kg
Misalignment Capability	±0.079 in.	±2 mm
Maximum Rotation	±1°	±1°
Weight	3.7 lbs.	1.7 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI	110 lbs	489 N
Valve required to actuate	4-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

℄ Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

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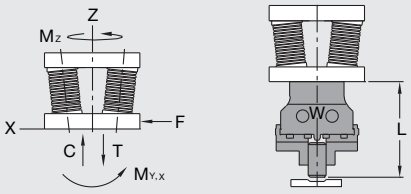


Loading Capacity†	Imperial	Metric
Maximum Force **F**	36 lbs.	160 N
Maximum Tension **T**	180 lbs.	800 N
Maximum Compressive **C**	180 lbs.	800 N
Maximum Moment **Mx**	265 in.-lbs.	30 Nm
Maximum Moment **My**	265 in.-lbs.	30 Nm
Maximum Moment **Mz**	265 in.-lbs.	30 Nm
Maximum Payload **W**	40 lbs.	18 Kg

Stiffness Information

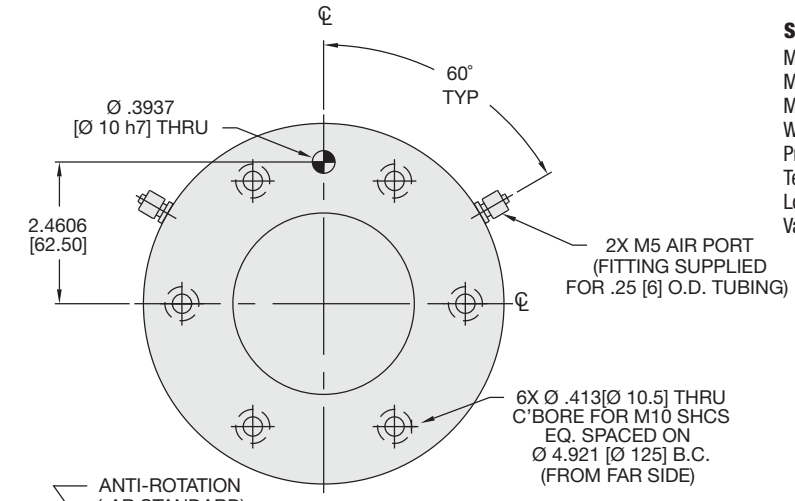
	Imperial	Metric
Torsional Stiffness about **Z** axis	998 in-lbs/deg	113 N-m/deg
Lateral Stiffness (**X** and **Y** axis)	457 lbf/in	80 N/mm
Axial Stiffness (compression **Z** axis)	18275 lbf/in	3200 N/mm
Insertion Point **L Max**	12 in.	300 mm

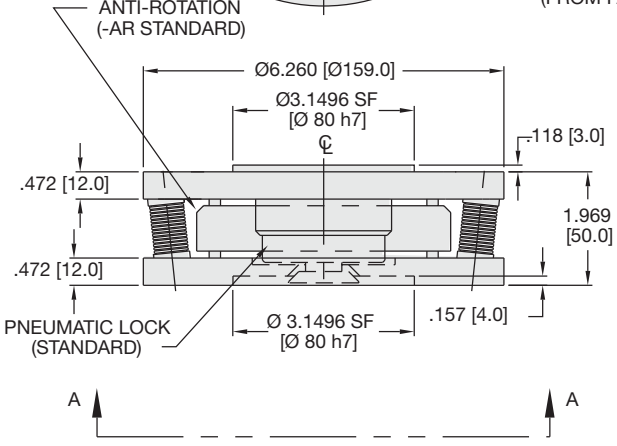
How to Order:

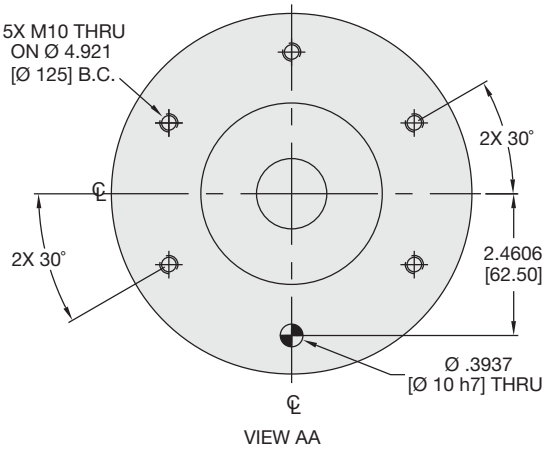
BASIC MODEL ANTI-ROTATION

RCW-160-6 - AR

COMPLIANCE WRIST RCW-160-8





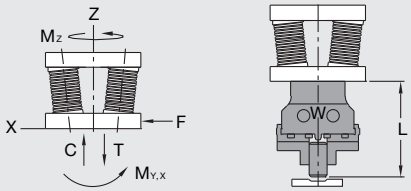


Specifications	RCW-160-8	
Maximum Payload	40 lbs	18 Kg
Misalignment Capability	±0.079 in.	±2 mm
Maximum Rotation	±1°	±1°
Weight	3.7 lbs.	1.7 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI	110 lbs	489 N
Valve required to actuate	4-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information



Loading Capacity†	Imperial	Metric
Maximum Force **F**	45 lbs.	200 N
Maximum Tension **T**	225 lbs.	1001 N
Maximum Compressive **C**	225 lbs.	1001 N
Maximum Moment **Mx**	708 in.-lbs.	80 Nm
Maximum Moment **My**	708 in.-lbs.	80 Nm
Maximum Moment **Mz**	708 in.-lbs.	80 Nm
Maximum Payload **W**	40 lbs.	18 Kg

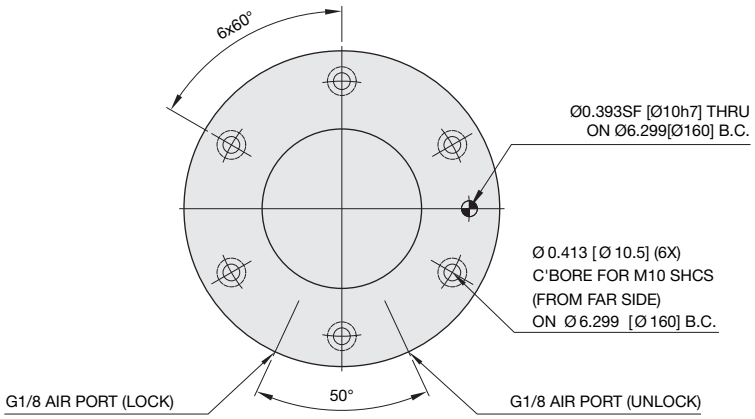
Stiffness Information

	Imperial	Metric
Torsional Stiffness about **Z** axis	1310 in-lbs/deg	148 N-m/deg
Lateral Stiffness (**X** and **Y** axis)	570 lbf/in	100 N/mm
Axial Stiffness (compression **Z** axis)	23985 lbf/in	4200 N/mm
Insertion Point **L Max**	12 in.	300 mm

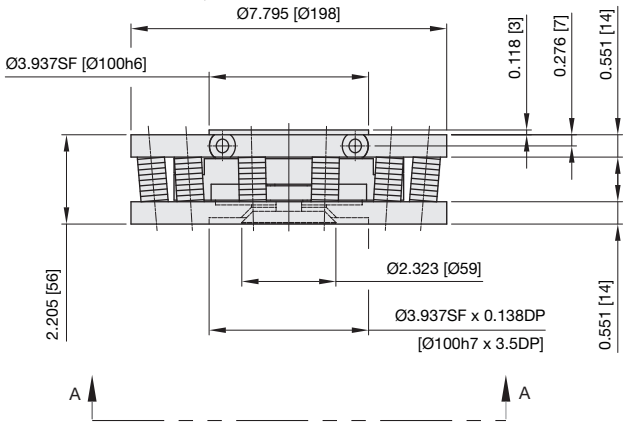
How to Order:

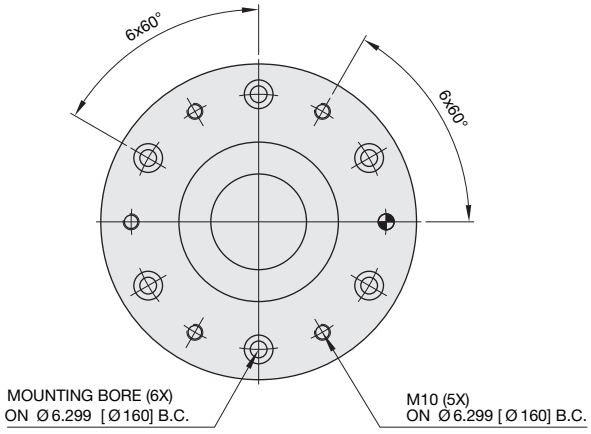
BASIC MODEL ANTI-ROTATION

RCW-160-8 -AR



Specifications	RCW-200-12	
Maximum Payload	115 lbs	52 Kg
Misalignment Capability	±0.118 in.	±3 mm
Maximum Rotation	±1°	±1°
Weight	18.3 lbs.	8.3 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI	400 lbs	1779 N
Valve required to actuate	4-way, 2-position	



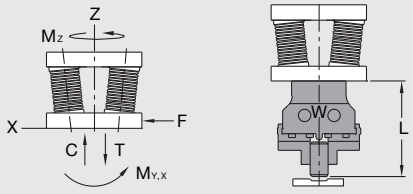


VIEW AA

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information



Loading Capacity†	Imperial	Metric
Maximum Force **F**	68 lbs.	300 N
Maximum Tension **T**	450 lbs.	2000 N
Maximum Compressive **C**	450 lbs.	2000 N
Maximum Moment $\mathbf{M_X}$	709 in.-lbs.	80 Nm
Maximum Moment $\mathbf{M_Y}$	709 in.-lbs.	80 Nm
Maximum Moment $\mathbf{M_Z}$	709 in.-lbs.	80 Nm
Maximum Payload **W**	115 lbs.	52 Kg

Stiffness Information

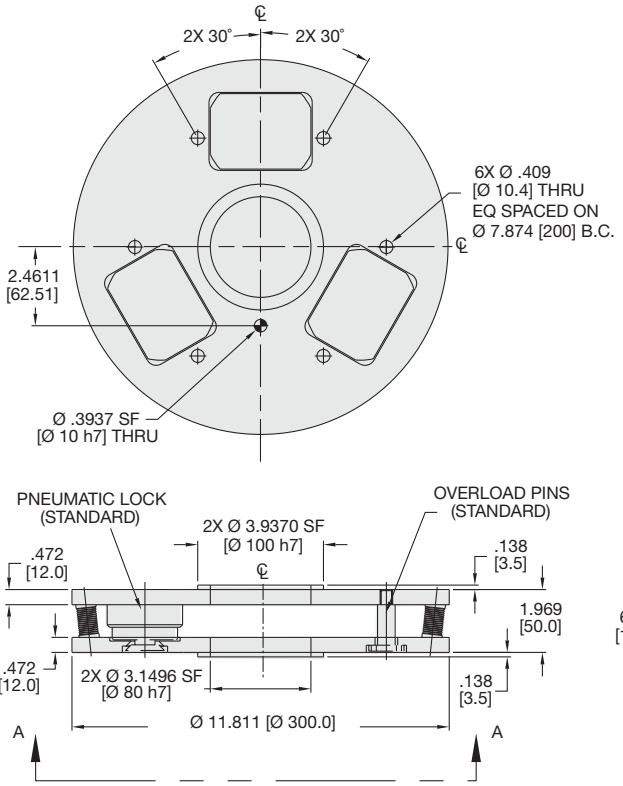
	Imperial	Metric
Torsional Stiffness about **Z** axis	1632 in-lbs/deg	184 N-m/deg
Lateral Stiffness (**X** and **Y** axis)	570 lbf/in	100 N/mm
Axial Stiffness (compression **Z** axis)	36544 lbf/in	6400 N/mm
Insertion Point **L Max**	16 in.	400 mm

How to Order:

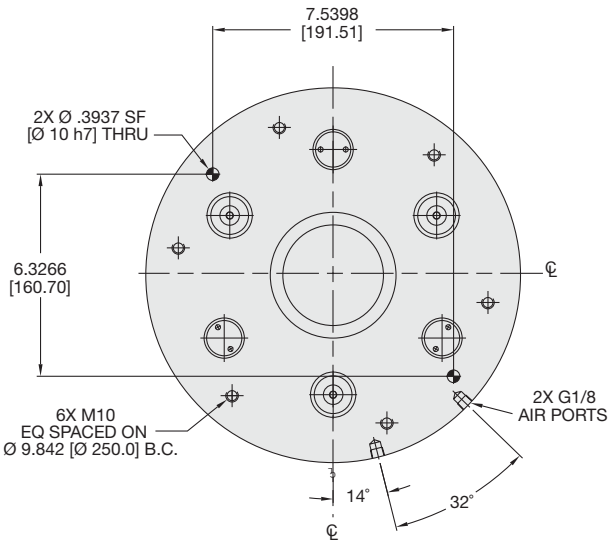
BASIC MODEL — ANTI-ROTATION

RCW-200-12 - AR

COMPLIANCE WRIST RCW-300-12



Specifications	RCW-300-12	
Maximum Payload	330 lbs	150 Kg
Misalignment Capability	±0.098 in.	±2.5 mm
Maximum Rotation	±1°	±1°
Weight	12.8 lbs.	5.8 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI	400 lbs	1779 N
Valve required to actuate	4-way, 2-position	

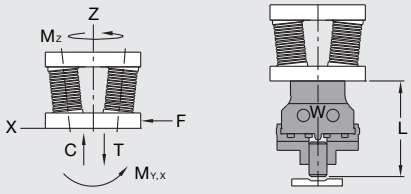


VIEW AA

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

Loading Information



Loading Capacity†	Imperial	Metric
Maximum Force **F**	90 lbs.	400 N
Maximum Tension **T**	450 lbs.	2000 N
Maximum Compressive **C**	450 lbs.	2000 N
Maximum Moment M_X	880 in.-lbs.	100 Nm
Maximum Moment M_Y	880 in.-lbs.	100 Nm
Maximum Moment M_Z	880 in.-lbs.	100 Nm
Maximum Payload **W**	330 lbs.	150 Kg

Stiffness Information

	Imperial	Metric
Torsional Stiffness about **Z** axis	3742 in-lbs/deg	422 N-m/deg
Lateral Stiffness (**X** and **Y** axis)	915 lbf/in	160 N/mm
Axial Stiffness (compression **Z** axis)	36545 lbf/in	6400 N/mm
Insertion Point **L Max**	24 in.	600 mm

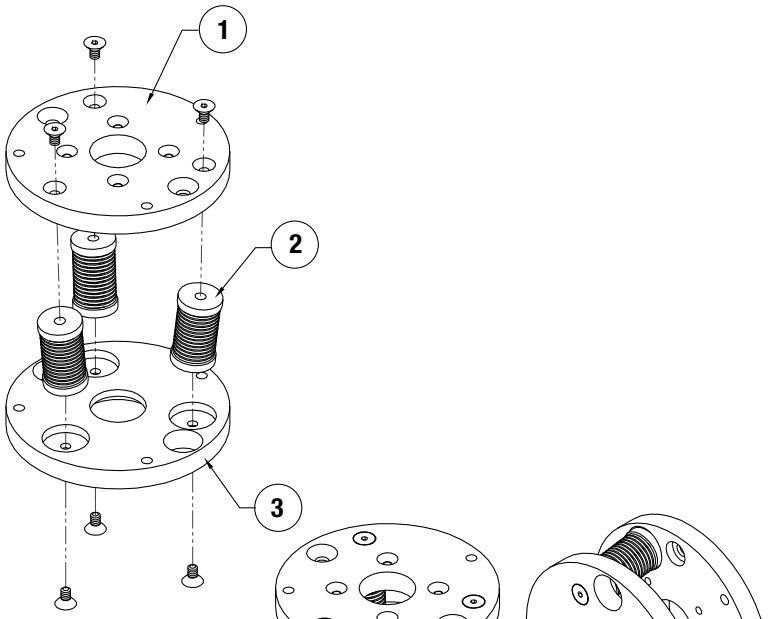
How to Order:

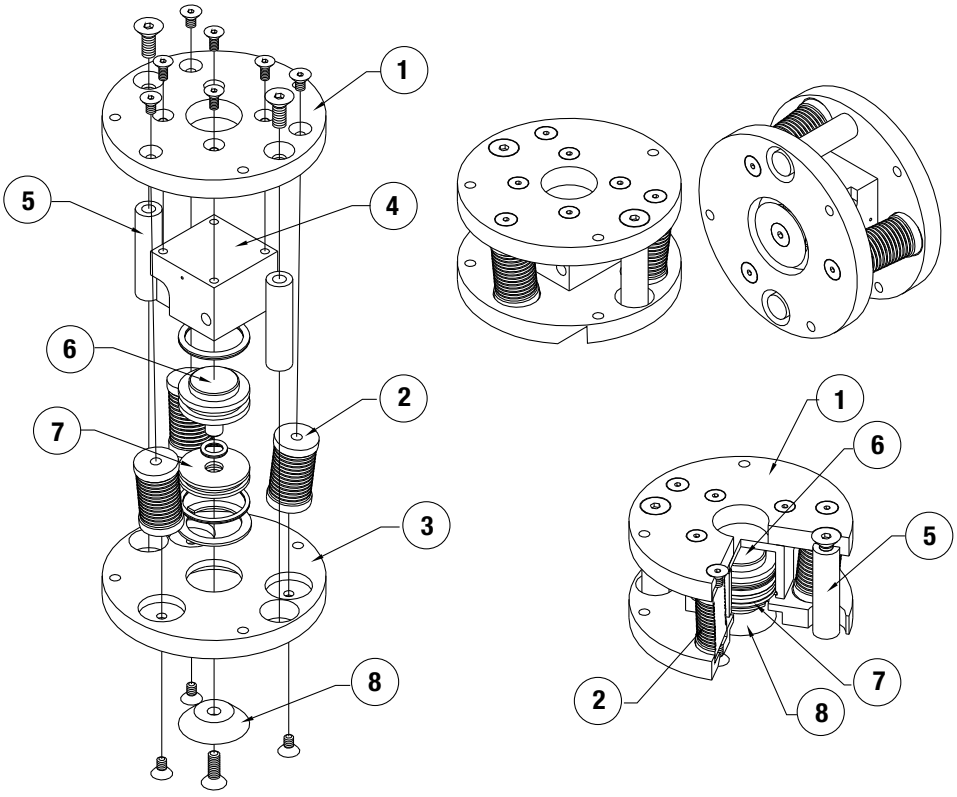
BASIC MODEL

RCW-300-12

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-226**	**3**

RCW Series Exploded View





Item	Qty	Name
01	1	Top Plate
02	x	Flexible Element
03	1	Bottom Plate
04	1	Locking Cylinder
05	1	Overload Pin
06	1	Piston
07	1	Cap
08	1	Centering Cone

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

SK Seal Repair Kit Order #'s See Product Data Sheets

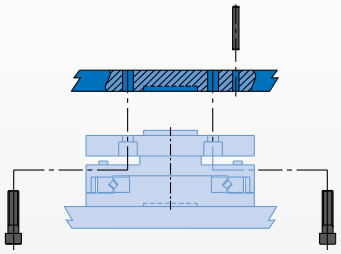
SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

Lateral Compliance Device – Pneumatic Centering

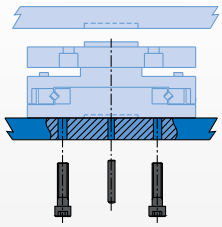
Robotic applications:
For inserting components that may be laterally misaligned with respect to mating parts. Reduces part jamming which could transmit excessive forces to the robot. Robot and tool side mounting patterns are made to DIN robot mounting standards.

Automation applications:
For insertion applications where part positioning may be less than precise. Compliance in lateral directions allows this device to compensate for part placing inaccuracies. Reduces jamming of mating components.

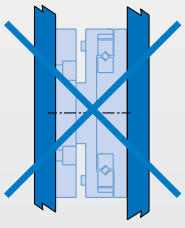
Mounting Information:



Robot side has counter bored holes for mounting with a dowel hole and raised boss for location



The tool side has tapped holes for mounting and a pilot hole and dowel hole for positioning



Not recommended in horizontal axis applications where the weight attached to the tool side can deflect the device

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Buna-N**	
Valve Required to Operate	**4-way, 2-position**	

Air Quality Requirements	
Air Filtration	**40 Micron or Better**
Air Lubrication	**Not Necessary***
Air Humidity	**Low Moisture Content (dry)**

Temperature Operating Range		
Buna-N Seals (standard)	**-20°~180° F**	**-30°~80° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***

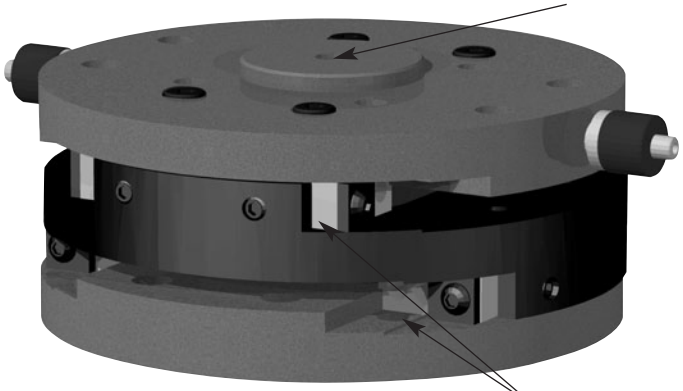
Application Restrictions
- Dirty or gritty environments
- Machining operations generating chips
- Environments with loose particulate

*Addition of lubrication will greatly increase service life
†See Maintenance Section

Product Features

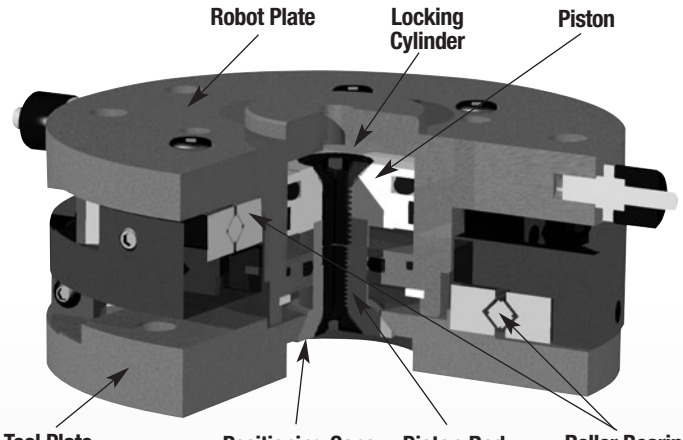
Hard Coat Anodize
Anodized aluminum components

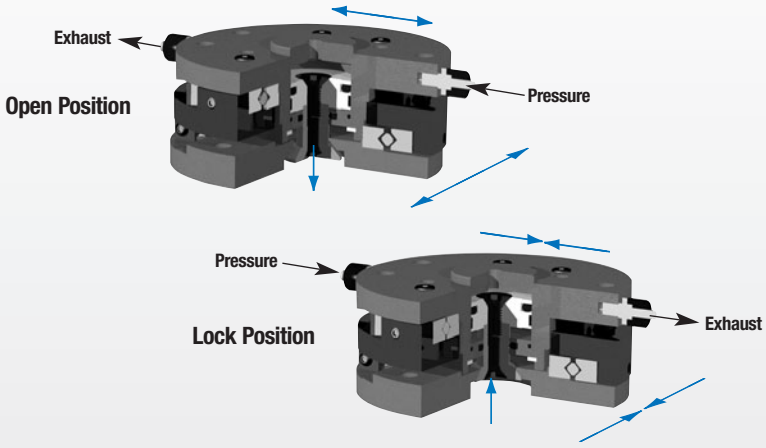
Locking Cylinder
Locking cylinder creates a rigid connection between robot and tool side



Crossed Roller Bearing
Crossed roller bearings eliminate side forces generated by placing misaligned components

Operating Principle





- The two halves of this device are connected by two pairs of crossed roller bearing slides that are perpendicular to one another.
- In the unlocked position, relative motion can occur independently between the two halves in both the X & Y directions.
- In the locked position, the tool half is brought back on center with respect to the robot half with the use of cone centering which is actua ted by the built in air cylinder.

Style-KA Lateral Alignment

Size -80R

Style:	KA-80R	
Max. Payload:	2 lb	1 Kg
Max. Misalignment:	0.08 in.	2mm
Weight:	1.10 lb	0.50 Kg

See Page 7.70

Style-KA Lateral Alignment

Size -100

Style:	KA-100	
Max. Payload:	5 lb	2.5 Kg
Max. Misalignment:	0.08 in.	2mm
Weight:	1.80 lb	0.82 Kg

See Page 7.71

Style-KA Lateral Alignment

Size -125

Style:	KA-125	
Max. Payload:	10 lb	5 Kg
Max. Misalignment:	0.12 in.	3.00mm
Weight:	4.4 lb	2.0 Kg

See Page 7.72

Style-KA Lateral Alignment

Size -160

Style:	KA-160	
Max. Payload:	25 lb	11 Kg
Max. Misalignment:	0.15 in.	4mm
Weight:	7.0 lb	3.2 Kg

See Page 7.73

Style-KA Lateral Alignment

Size -200

Style:	KA-200	
Max. Payload:	90 lb	40 Kg
Max. Misalignment:	0.47 in.	12 mm
Weight:	16.5 lb	7.5 Kg

Se Page 7.74

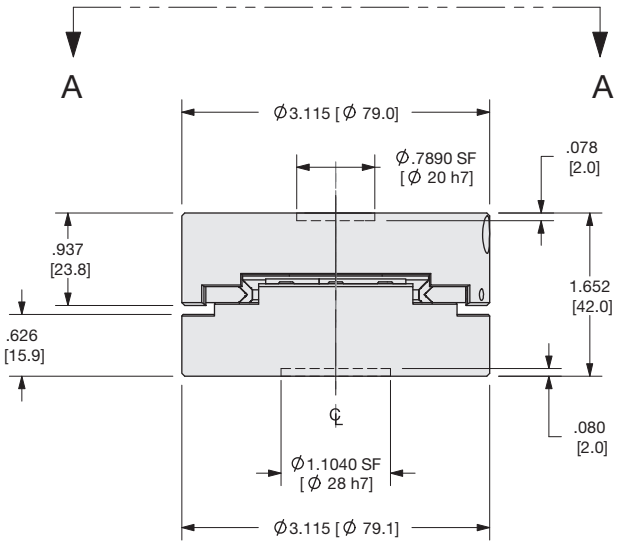
Style-KA Lateral Alignment

Size -300

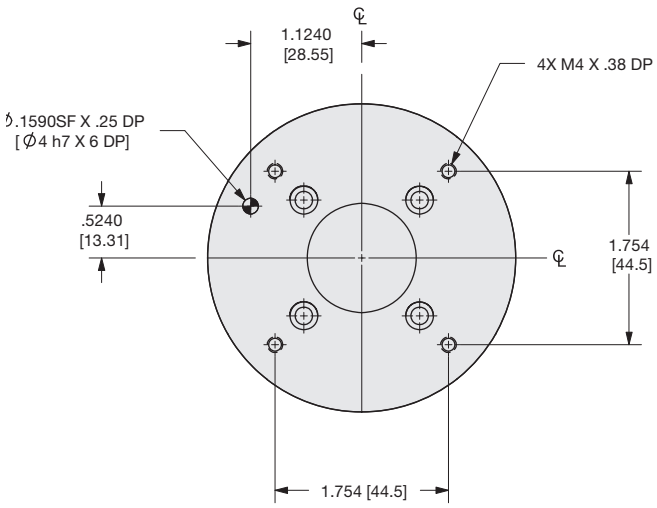
Style:	KA-300	
Max. Payload:	440 lb	200 Kg
Max. Misalignment:	0.98 in.	25 mm
Weight:	115 lb	52 Kg

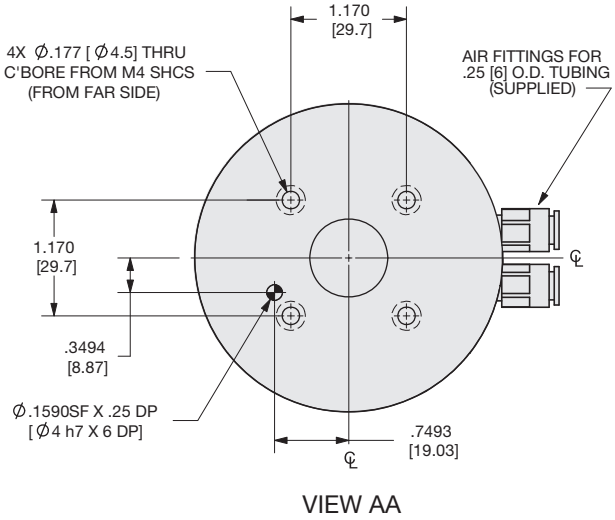
See Page 7.75

LATERAL ALIGNMENT KA-80R
PNEUMATIC CENTERING SERIES



Specifications	KA-80R	
Maximum Payload	2 lbs	1 Kg
Misalignment Capability	±0.08 in.	±2 mm
Weight	1.1 lb	0.50 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI	30 lbs	133 N
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	





VIEW AA

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

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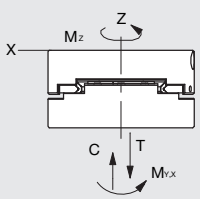
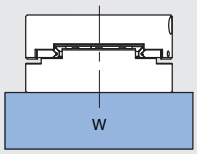




Loading Capacity	Imperial	Metric
Maximum Tensile **T**	45 lb	200 N
Maximum Compressive **C**	45 lb	200 N
Maximum Moment **Mx**	26 in.- lb	3.0 Nm
Maximum Moment **My**	26 in.- lb	3.0 Nm
Maximum Moment **Mz**	26 in.- lb	3.0 Nm
Maximum Payload **W**	2.0 lb	1 Kg

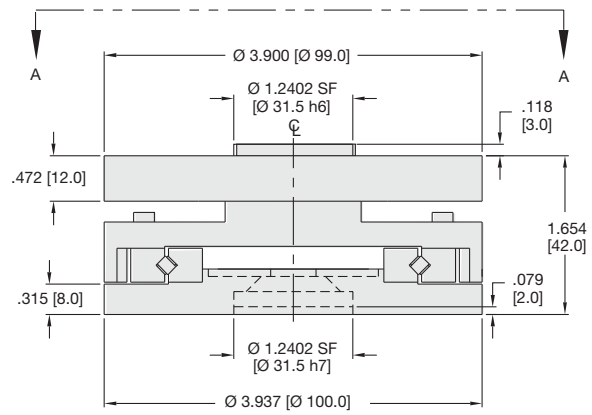
How to Order:

BASIC MODEL

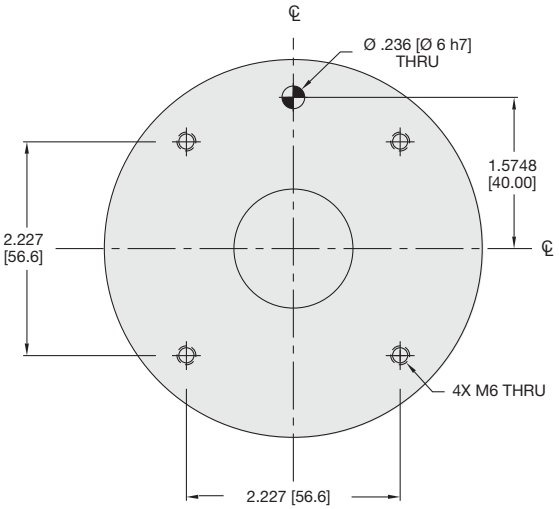
KA-80R

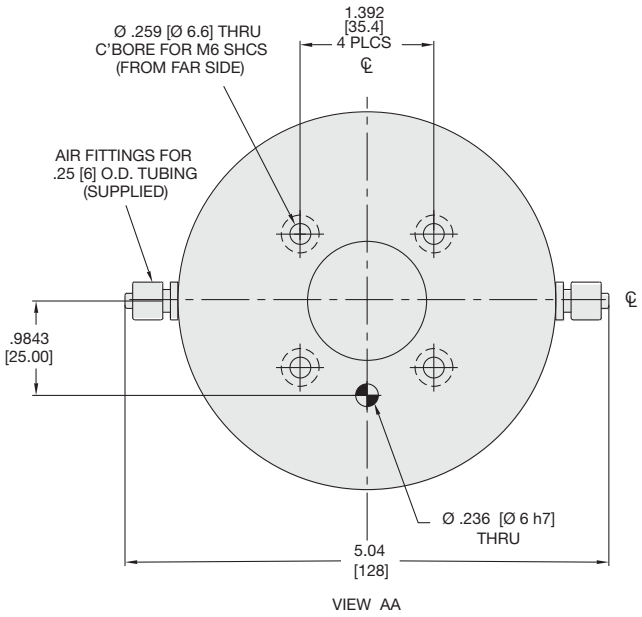
PNEUMATIC ACCESSORIES

Standard Seal Repair Kit	**SLKT-213**	**1**



Specifications	KA-100	
Maximum Payload	5 lbs	2.5 Kg
Misalignment Capability	±0.08 in.	±2 mm
Weight	1.80 lb	0.82 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI	70 lbs	311 N
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	





VIEW AA

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Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

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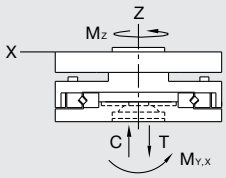
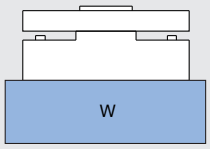




Loading Capacity	Imperial	Metric
Maximum Tensile **T**	90 lb	400 N
Maximum Compressive **C**	90 lb	400 N
Maximum Moment M_X	265 in.- lb	30.0 Nm
Maximum Moment M_Y	265 in.- lb	30.0 Nm
Maximum Moment M_Z	265 in.- lb	30.0 Nm
Maximum Payload **W**	5 lb	2.5 Kg

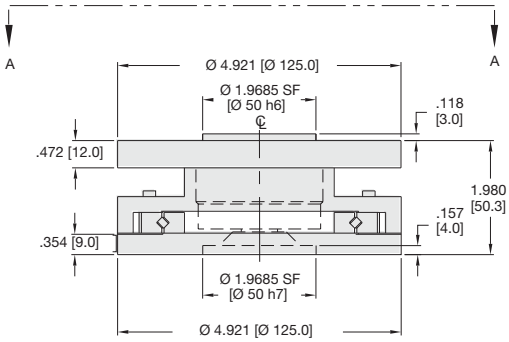
How to Order:

BASIC MODEL

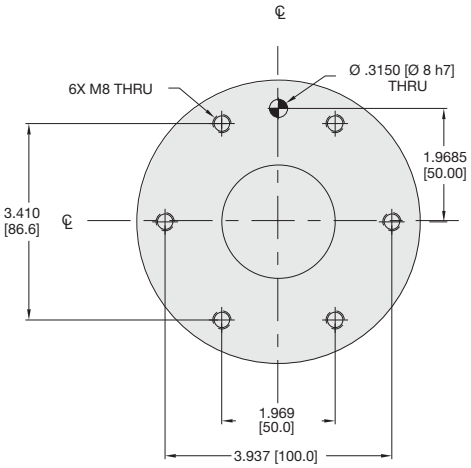
KA-100

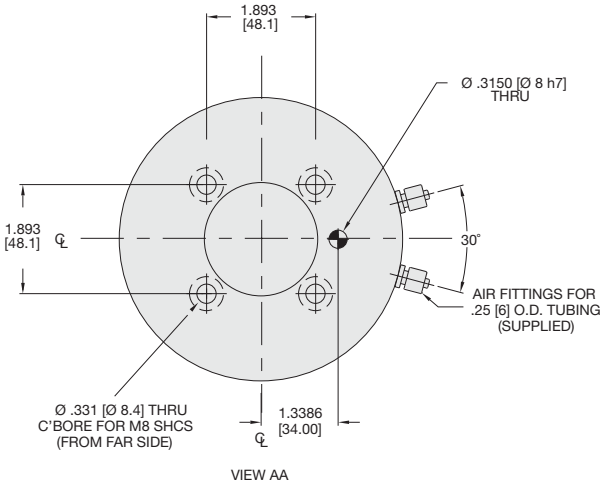
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	SLKT-132	1

LATERAL ALIGNMENT KA-125
PNEUMATIC CENTERING SERIES



Specifications	KA-125	
Maximum Payload	10 lbs	5 Kg
Misalignment Capability	±0.12 in.	±3 mm
Weight	4.4 lb	2.0 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI	120 lbs	533 N
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	





VIEW AA

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Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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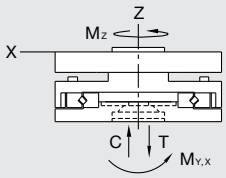
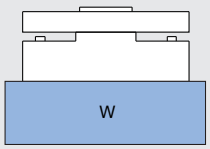




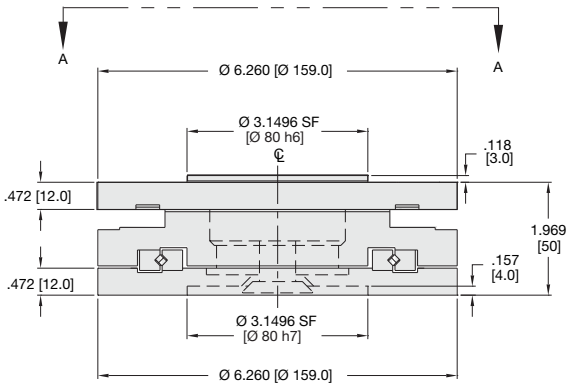
Loading Capacity	Imperial	Metric
Maximum Tensile **T**	180 lb	801 N
Maximum Compressive **C**	180 lb	801 N
Maximum Moment **Mx**	530 in.- lb	59.9 Nm
Maximum Moment **My**	530 in.- lb	59.9 Nm
Maximum Moment **Mz**	530 in.- lb	59.9 Nm
Maximum Payload **W**	10 lb	5 Kg

How to Order:

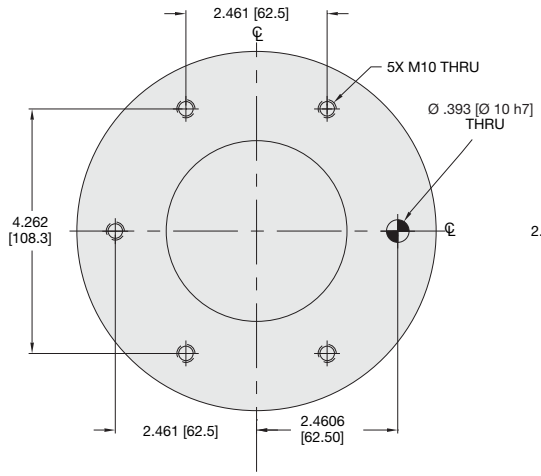
BASIC MODEL

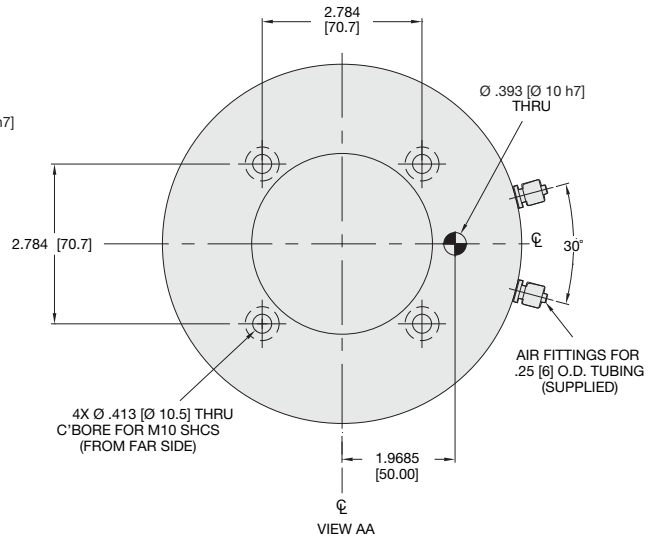
KA-125

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-133**	**1**



Specifications	KA-160	
Maximum Payload	25 lbs	11 Kg
Misalignment Capability	±0.15 in.	±4 mm
Weight	7.0 lb	3.2 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI	120 lbs	533 N
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	





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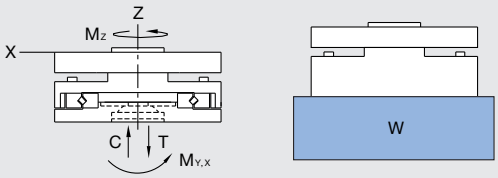
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information



Loading Capacity	Imperial	Metric
Maximum Tensile **T**	225 lb	1001 N
Maximum Compressive **C**	225 lb	1001 N
Maximum Moment **Mx**	885 in.- lb	100.0 Nm
Maximum Moment **My**	885 in.- lb	100.0 Nm
Maximum Moment **Mz**	885 in.- lb	100.0 Nm
Maximum Payload **W**	25 lb	11 Kg

How to Order:

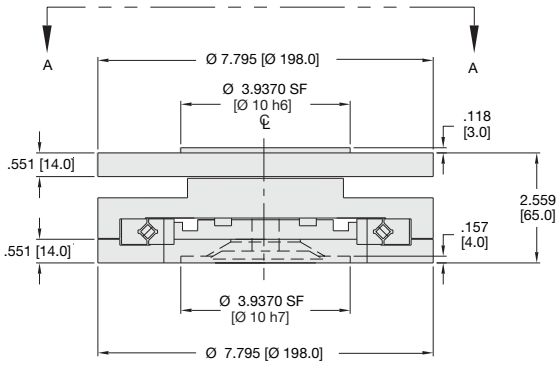
BASIC MODEL

KA-160

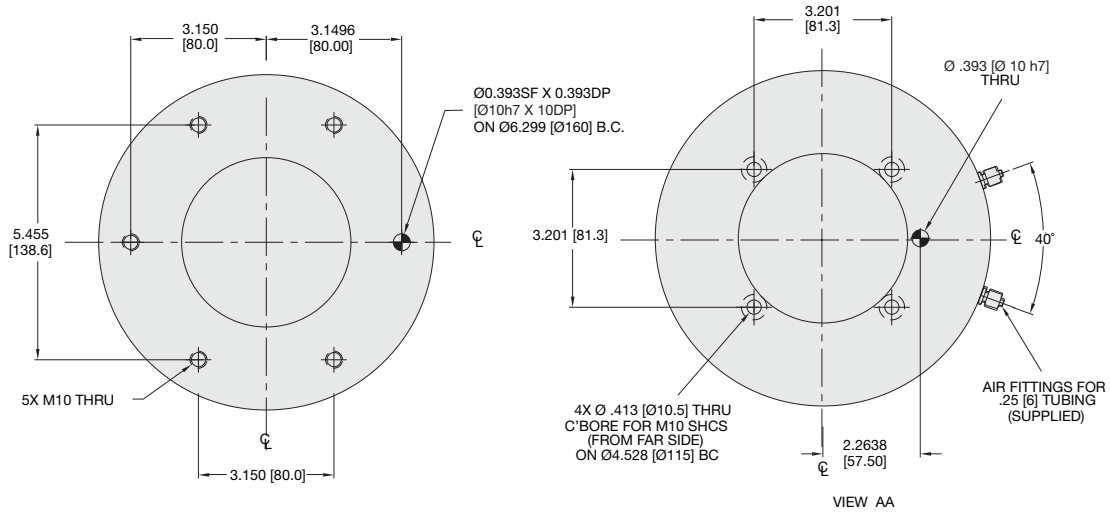
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-134**	**1**

LATERAL ALIGNMENT KA-200
PNEUMATIC CENTERING SERIES

Robohand



Specifications	KA-200	
Maximum Payload	90 lbs	40 Kg
Misalignment Capability	±0.47 in.	±12 mm
Weight	18.5 lb	7.5 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI	400 lbs	1779 N
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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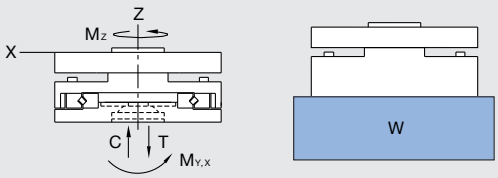


Loading Capacity	Imperial	Metric
Maximum Tensile **T**	360 lb	1601 N
Maximum Compressive **C**	360 lb	1601 N
Maximum Moment **Mx**	1327 in.- lb	150.0 Nm
Maximum Moment **My**	1327 in.- lb	150.0 Nm
Maximum Moment **Mz**	1327 in.- lb	150.0 Nm
Maximum Payload **W**	90 lb	40 Kg

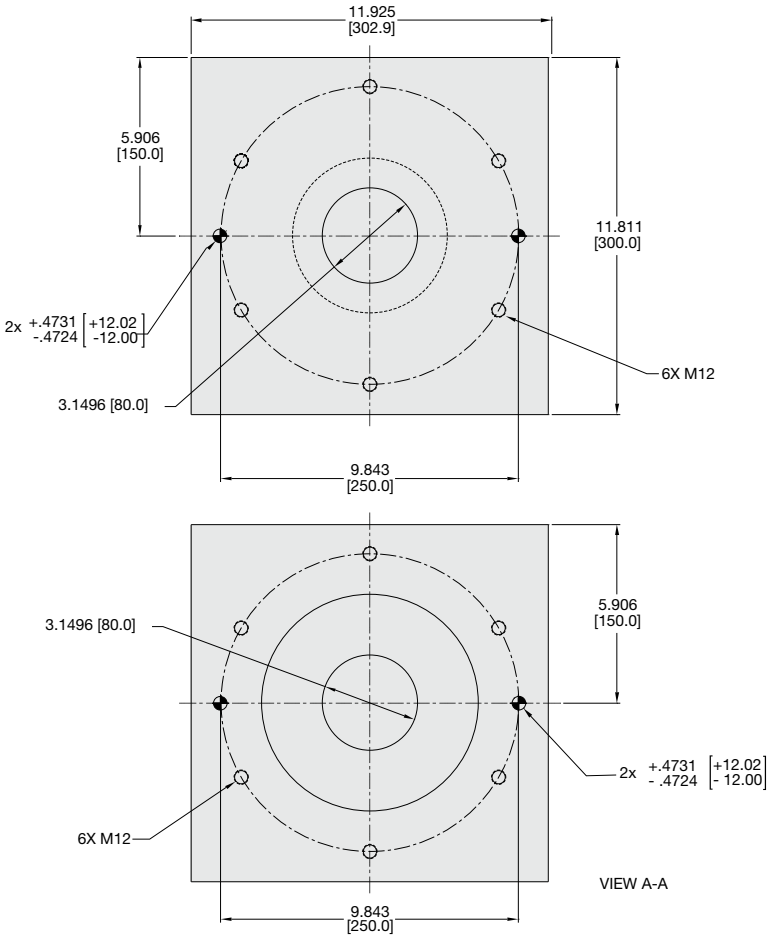
How to Order:

BASIC MODEL

KA-200

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	SLKT-135	1

Specifications	KA-300	
Maximum Payload	440 lbs	200 Kg
Misalignment Capability	±0.98 in.	±25 mm
Weight	115 lb	52 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI	725 lbs	3224 N
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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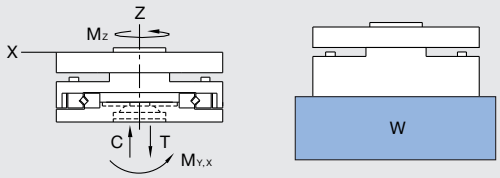


Loading Capacity	Imperial	Metric
Maximum Tensile **T**	900 lb	4003 N
Maximum Compressive **C**	900 lb	4003 N
Maximum Moment **Mx**	2655 in.- lb	300.0 Nm
Maximum Moment **My**	2655 in.- lb	300.0 Nm
Maximum Moment **Mz**	2655 in.- lb	300.0 Nm
Maximum Payload **W**	440 lb	200 Kg

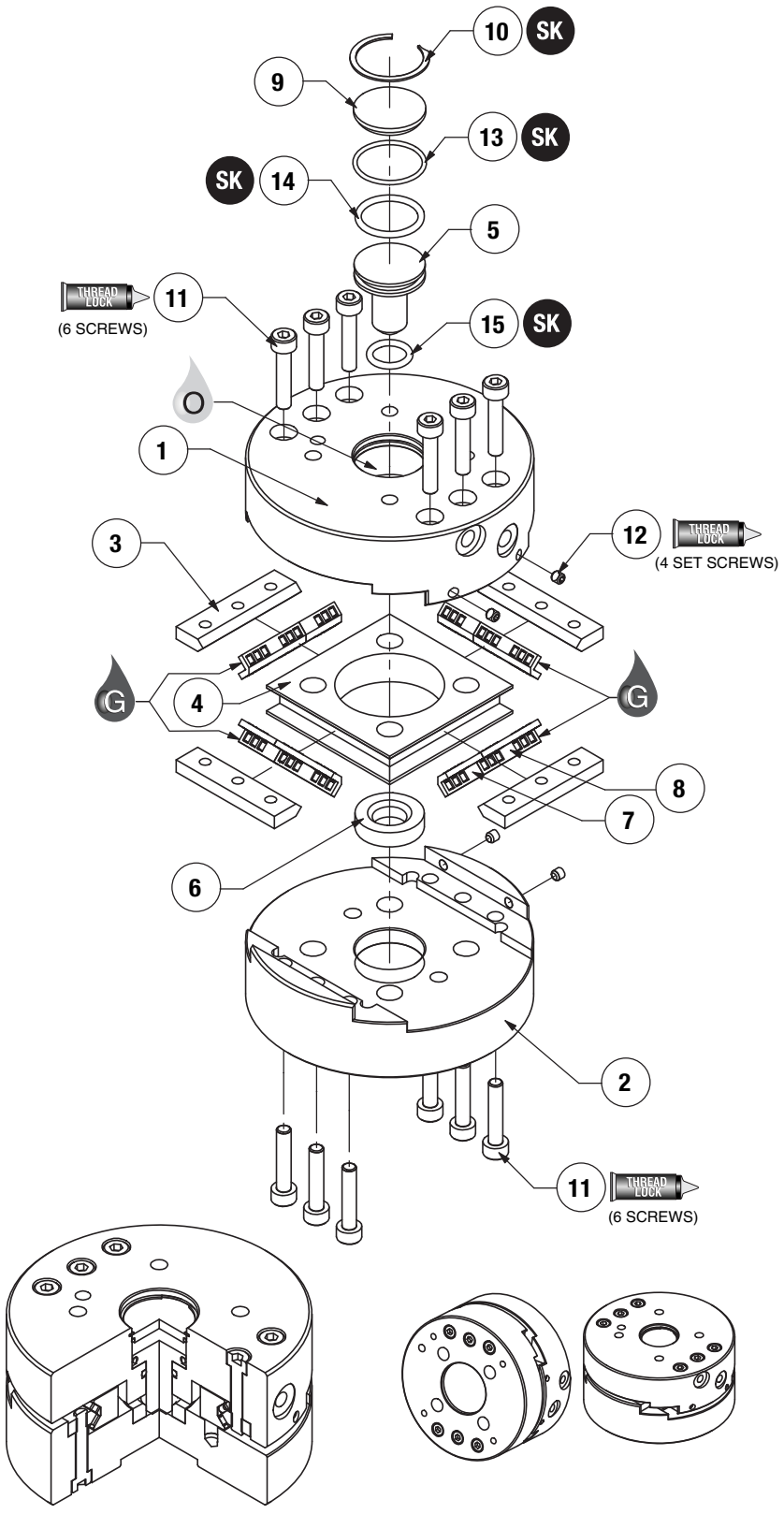
How to Order:

BASIC MODEL

KA-300

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-136**	**1**

KA-80R Series Exploded View



Item	Qty	Name
01	1	Robot Half
02	1	Tool Half
03	4	Way
04	1	Center Rail
05	1	Piston
06	1	Bushing
07	4	Roller Cage Half
08	4	Roller Cage Full
09	1	Cap
10	1	Retaining Ring
11	12	Socket Head Screw
12	4	Set Screw
13	1	O-Ring
14	1	O-Ring
15	1	O-Ring

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

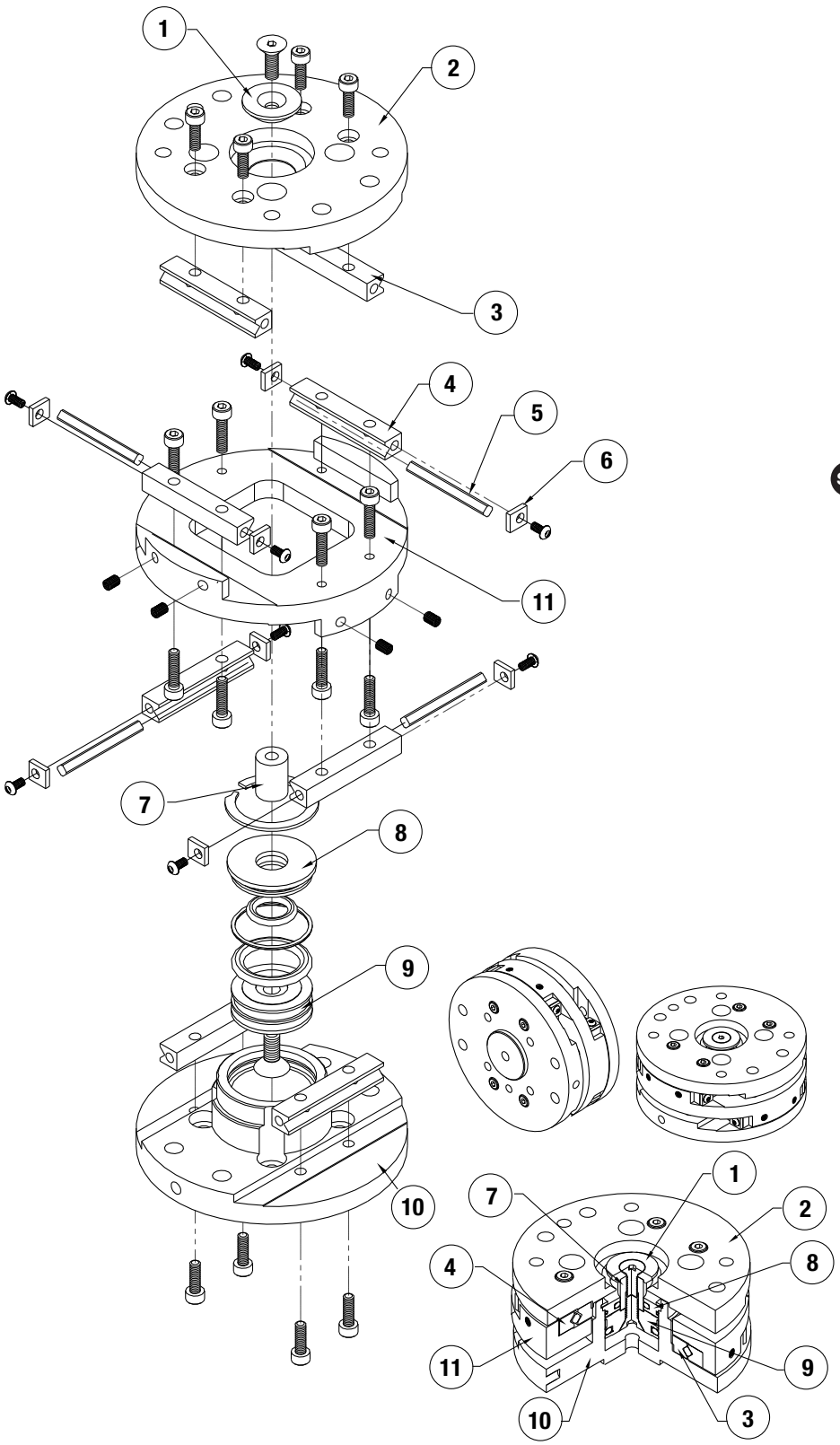
Preload Adjustment

1) Loosen the six socket head cap screws on the robot half (1) about 1/2 turn.
2) Seat the way (3) that is furthest from the preload set screws (4) in position and using loctite on the threads, tighten those three screws to fasten the way in place.
3) Evenly advance the two preload set screws to a point where there is no play in the robot half.
4) Using loctite on the threads, tighten the remaining three screws to fasten the way (3) in place. **NOTE:** There is a possibility that when the second set of screws are tightened, the preload will increase - if this happens, loosen the three screws again and back off slightly and evenly on the two preload adjustment set screws.
5) Follow 1 thru 4 again to adjust the preload for the tool half (2).
6) Be sure that the bearings glide freely - if the unit becomes choppy then the preload might be too tight.
7) As a check to see that the preload has been set properly, you should be able to push on the end of one of the nylon bearing cages with about 3 pounds, and that half will move without the bearing skidding.

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

KA-100~300 Series Exploded View



Item	Qty	Name
01	1	Centering Cone
02	1	Top Plate
03	4	Rail,Fixed
04	4	Rail, Moveable
05	4	Bearings
06	8	Stop
07	1	Shaft
08	1	Cap
09	1	Piston
10	1	Bottom Plate
11	1	Center Plate

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items

THREAD LOCK Thread Locker

KRYTOX Krytox™ Lubricant

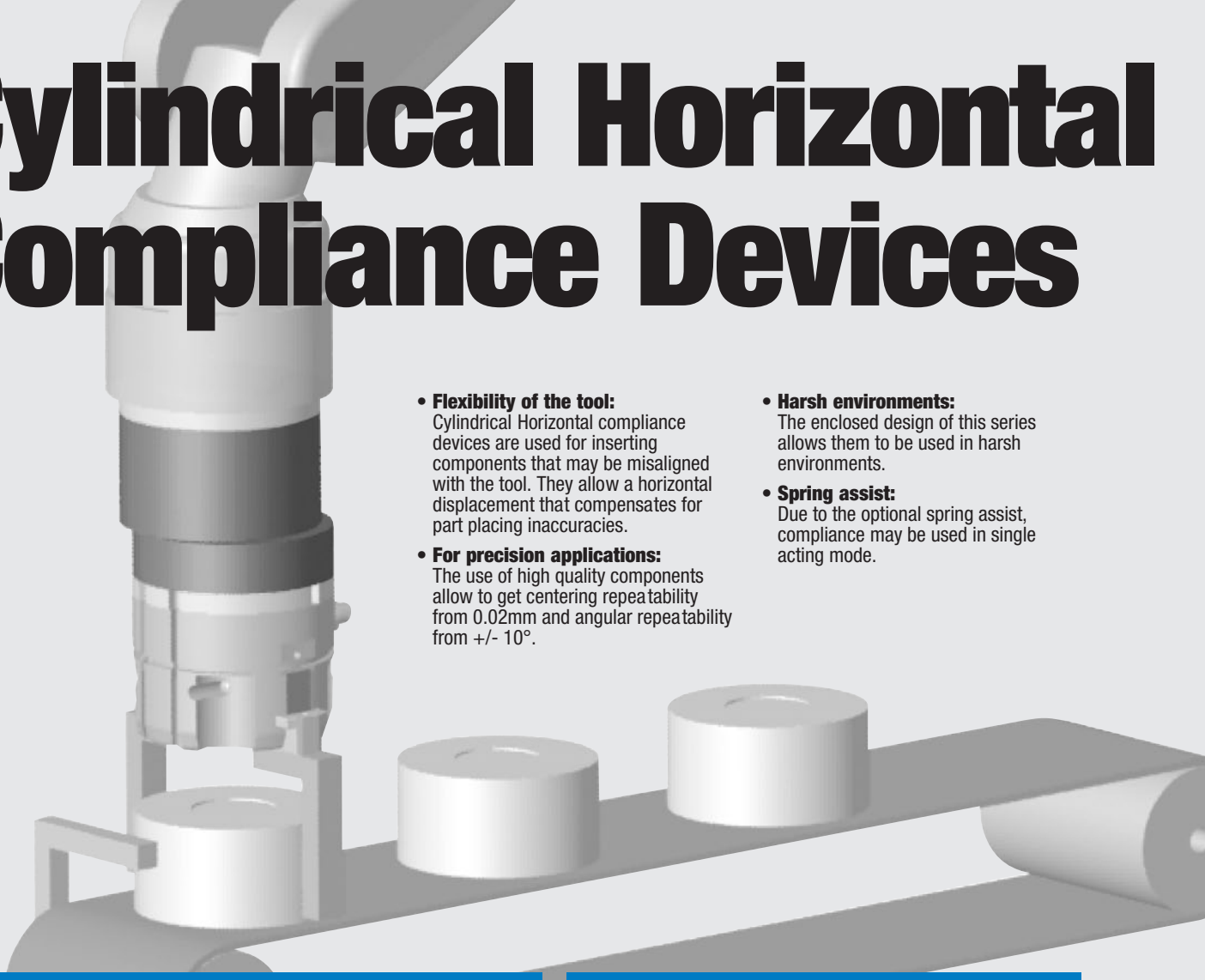
O Lightweight Machine Oil

G Teflon® Based Grease

GLUE Super Bonder

Third Angle Projection

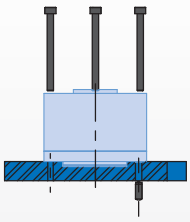
Cylindrical Horizontal Compliance Devices



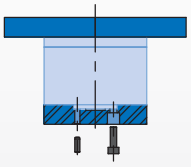
- **Flexibility of the tool:** Cylindrical Horizontal compliance devices are used for inserting components that may be misaligned with the tool. They allow a horizontal displacement that compensates for part placing inaccuracies.
- **For precision applications:** The use of high quality components allow to get centering repeatability from 0.02mm and angular repeatability from +/- 10°.
- **Harsh environments:** The enclosed design of this series allows them to be used in harsh environments.
- **Spring assist:** Due to the optional spring assist, compliance may be used in single acting mode.

Mounting Information:

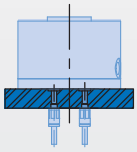
It is recommended to use the compliance in the vertical axis only



The compliance is located using a pilot boss and a dowel pin and assembled using 4 or 6 through body screws



Tooling is located using a centering and a dowel pin and assembled using 4 screws



Compliance can be operated using top manifold airport

Technical Specifications:

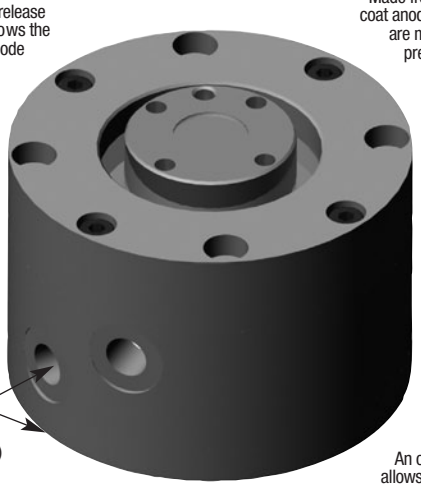
Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**30-100 psi**	**2-7 bar**
Cylinder Type	**Double acting or double acting spring assist or single acting spring return**	
Dynamic seals	**Internally lubricated Buna-N seals**	
Valves Required to Operate		
Double Acting	**4-way, 2 position**	
Single Acting (-RL or -RA option)	**3 way, 2 position**	
Air Quality Requirements		
Air Filtration	**40 Micron or Better**	
Air Lubrication	**Not Necessary***	
Air Humidity	**Low Moisture Content (dry)**	
Temperature Operating Range		
Joints Nitrile (standard)	**-10°~180° F**	**-25°~80° C**
Maintenance Specifications**		
Expected Life		
Normal Application	**3 million cycles**	
w/ Preventative Maintenance	**6+ million cycles**	
Field Repairable	**Yes**	
Seal Repair Kits Available	**Yes**	

*Addition of lubrication will greatly increase service life
**See Maintenance Section

Product Features

Spring Assist
Spring assist option allows to center the tool (RA) or to release the tooling (RL). It also allows the use in single acting mode

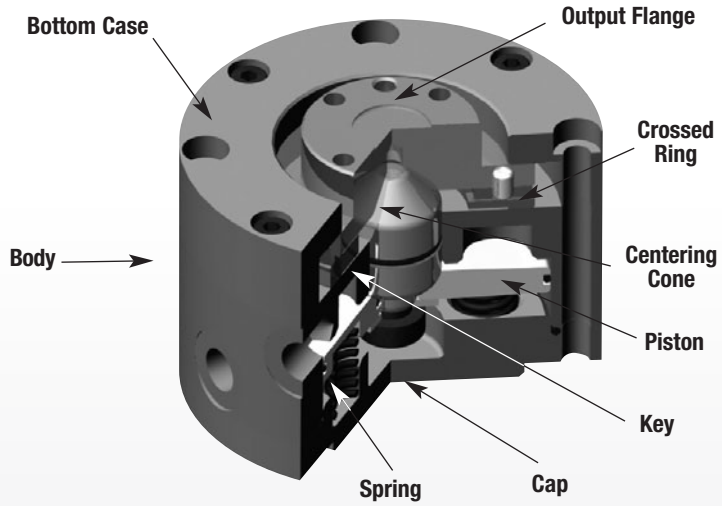
Quality Components
Made from aluminum alloy hard coat anodization. Main components are made of hardened and precision ground steel

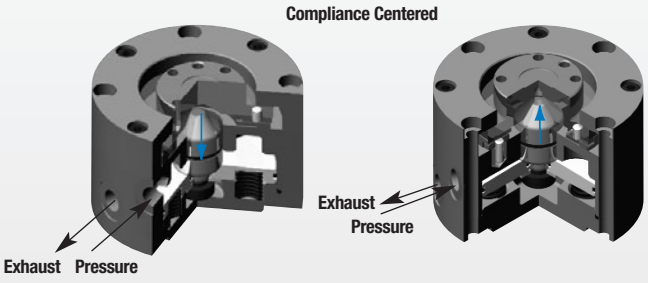


Air Ports
Side or top airports (top ports require O-rings)

Interface
An optional blank interface allows to easily machine adapt the tooling onto the compliance

Operating Principle

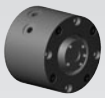




- A double acting piston is linked to a centering cone with a male cone a t its end.
- When actuated, the male cone goes into the female cone of the output flange.
- The two perpendicular slots of the crossed ring enables the tooling to keep its orientation.
- The spring assist option allows to center (RA) or to release (RL) the output flange in case of air failure. It also allows the use in single acting mode.

Style- Cylindrical Horizontal Compliance Devices

Size-50

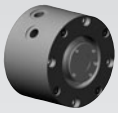


Style:	CH-50	
Misalignment Capability:	± 0.118 in.	± 3 mm
Maximum Payload:	4.4 lbs.	2 Kg
Weight:	0.43 lbs.	0.195 Kg

See Page 7.80

Style- Cylindrical Horizontal Compliance Devices

Size-80

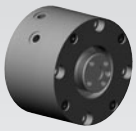


Style:	CH-80	
Misalignment Capability:	± 0.197 in.	± 5 mm
Maximum Payload:	17.6 lbs.	8 Kg
Weight:	1.65 lbs.	0.750 Kg

See Page 7.81

Style- Cylindrical Horizontal Compliance Devices

Size-110

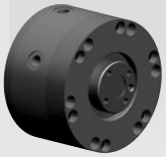


Style:	CH-110	
Misalignment Capability:	± 0.256 in.	± 6.5 mm
Maximum Payload:	30.8 lbs.	14 Kg
Weight:	4.63 lbs.	2.10 Kg

See Page 7.82

Style- Cylindrical Horizontal Compliance Devices

Size-140

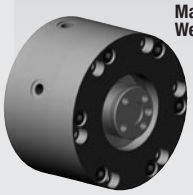


Style:	CH-140	
Misalignment Capability:	± 0.315 in.	± 8 mm
Maximum Payload:	66.12 lbs.	30 Kg
Weight:	9.50 lbs.	4.310 Kg

See Page 7.83

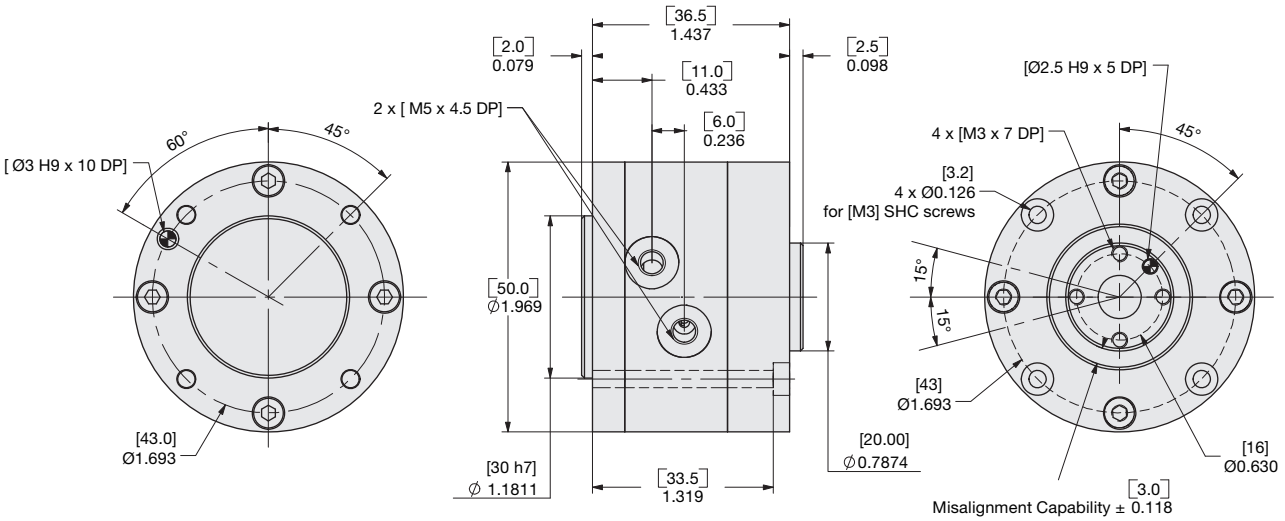
Style- Cylindrical Horizontal Compliance Devices

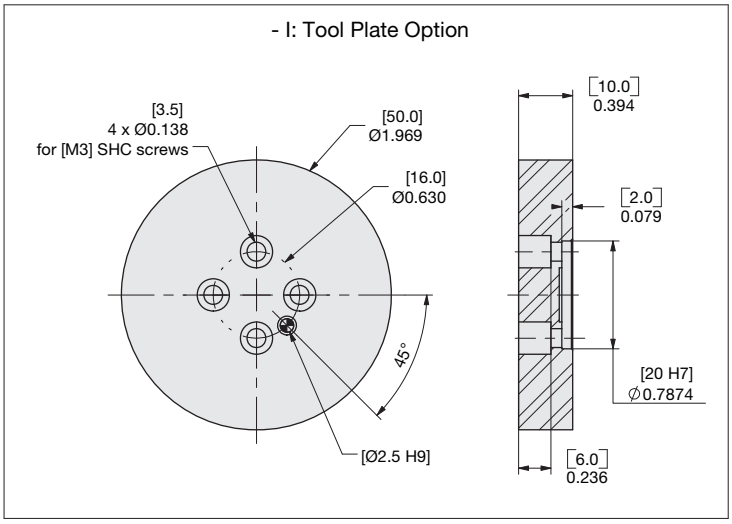
Size-165



Style:	CH-165	
Misalignment Capability:	± 0.472 in.	± 12 mm
Maximum Payload:	88.18 lbs.	40 Kg
Weight:	19.18 lbs.	8.7 Kg

See Page 7.84





Specifications	**CH-50**	
Centering force @100psi [7 bar]	74 lbs.	332 N
Maximum payload	4.4 lbs.	2 Kg
Misalignment Capability	±0.12 in.	±3 mm
Weight	0.43 lbs.	0.195 Kg
Pressure Range (without springs)	30-100 psi	2-7 bar
Pressure Range (with springs)	43-100 psi	3-7 bar
Cylinder bore	1.34 in.	34 mm
Displacement	0.32 in^3	5.2 cm^3
Actuation	0.07 sec. /0.07 sec	
Repeatability	±0.0008 in.	±0.02 mm
Angular repeatability	±10mn	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

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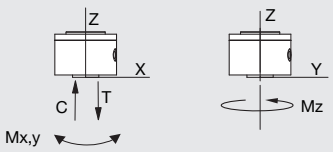


Loading Capacity	Imperial	Metric
Maximum Tensile **T**	17 lbs.	75 N
Maximum Breakaway Compressive **C**	17 lbs.	75 N
Maximum Breakaway Moment **Mx**	17.7 in.-lbs.	2 Nm
Maximum Breakaway Moment **My**	17.7 in.-lbs.	2 Nm
Maximum Breakaway Moment **Mz**	8.8 in.-lbs.	1 Nm

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — TOOL PLATE

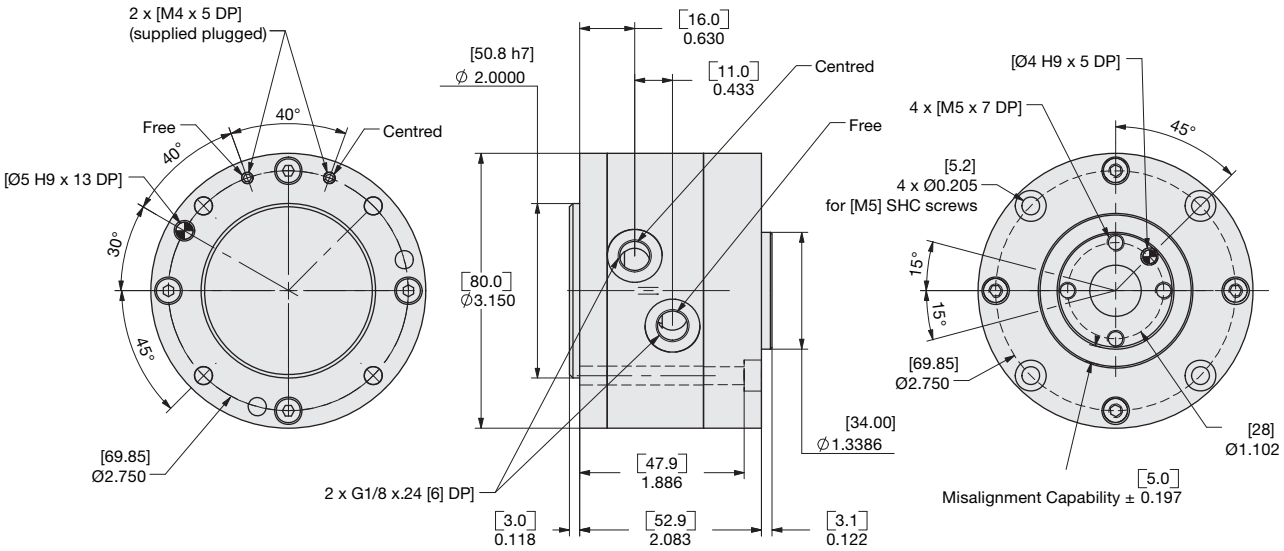
CH-50P - ___ - I - ___

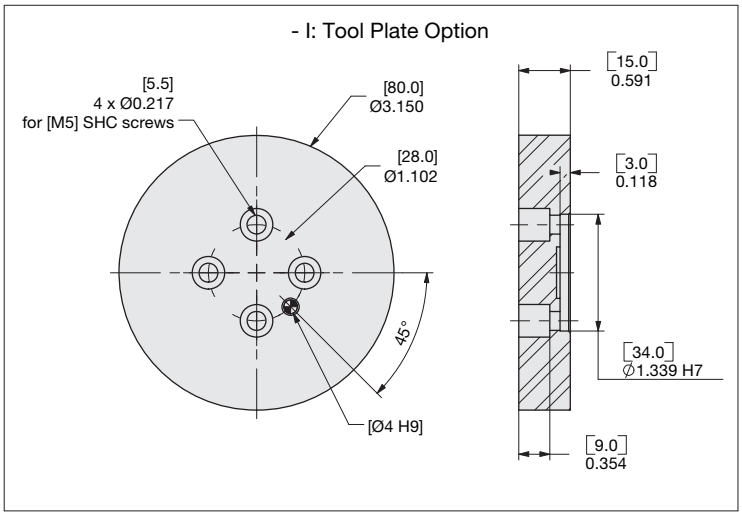
SPRING ASSIST — MISALIGNMENT

SPRING
- **RA** Tool Recentering
- **RL** Tool Release
- __ Leave Blank. No Spring Option (standard)

MISALIGNMENT
- **XX** Special Misalignment x 10 (ie: 15 is for +/- 1.5mm)
- __ Leave Blank. Standard Capability

For more information call us at: **1.888.DESTACO or 248.836.6700** Fax: **248.836.6901** Visit us on the Internet at: **www.destaco.com**





Specifications	CH-80	
Centering force @100psi [7 bar]	232 lbs.	1035 N
Maximum payload	17.6 lbs.	8 Kg
Misalignment Capability	±0.20 in.	±5 mm
Weight	1.65 lbs.	0.750 Kg
Pressure Range (without springs)	30-100 psi	2-7 bar
Pressure Range (with springs)	60-100 psi	4-7 bar
Cylinder bore	2.37 in.	60 mm
Displacement	1.64 in^3	26.8 cm^3
Actuation	0.08 sec. /0.08 sec.	
Repeatability	±0.0008 in.	±0.02 mm
Angular repeatability	±10mn	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline

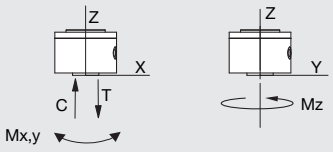
Third Angle Projection

All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

Metric Threads Course Pitch

Imperial in.	Metric [mm]
0.00 = ± .01	[0.] = [± .25]
0.000 = ± .005	[0.0] = [± .13]
0.0000 = ± .0005	[0.00] = [± .013]

Loading Information



Loading Capacity	Imperial	Metric
Maximum Tensile **T**	36 lbs.	160 N
Maximum Breakaway Compressive **C**	36 lbs.	160 N
Maximum Breakaway Moment **Mx**	71 in.-lbs.	8 Nm
Maximum Breakaway Moment **My**	71 in.-lbs.	8 Nm
Maximum Breakaway Moment **Mz**	53 in.-lbs.	6 Nm

How to Order: (Order Accessories separately from Basic Model)

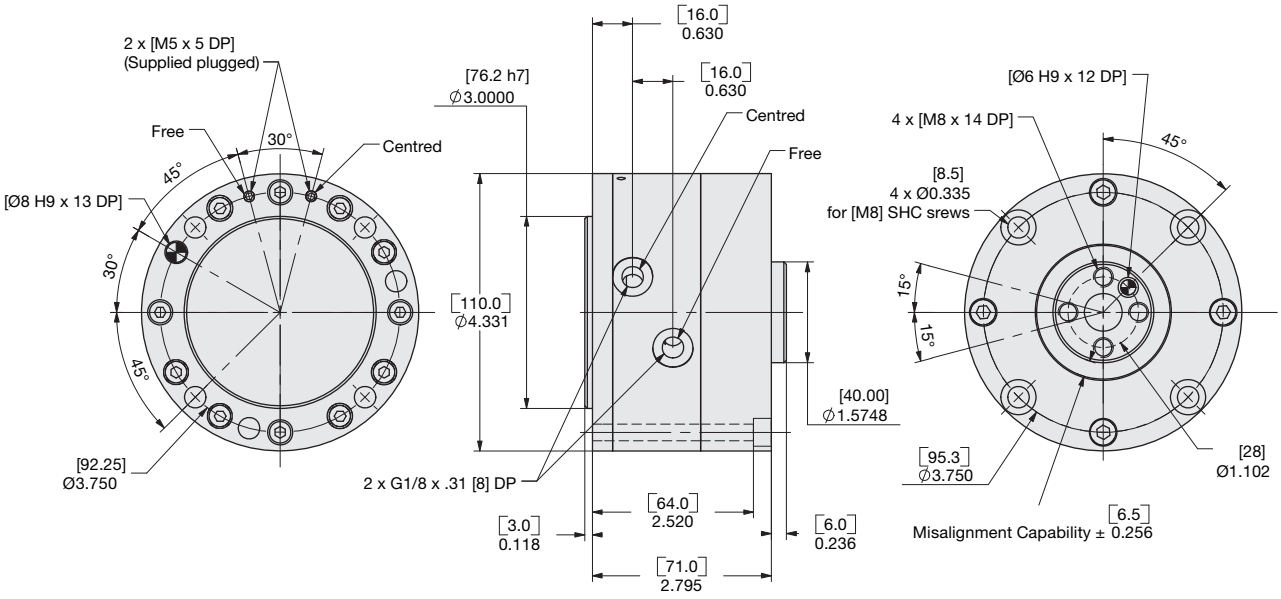
BASIC MODEL — TOOL PLATE

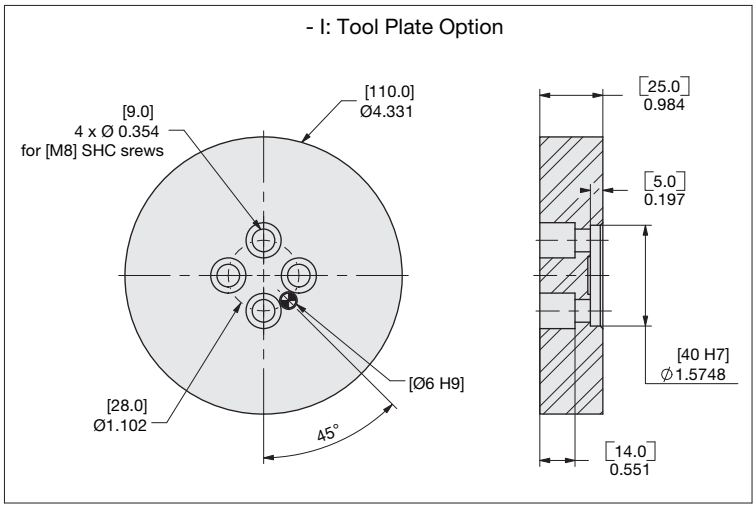
CH-80P - ☐ - I - ☐

SPRING ASSIST — MISALIGNMENT

SPRING
- **RA** Tool Recentering
- **RL** Tool Release
- __ Leave Blank. No Spring Option (standard)

MISALIGNMENT
- **XX** Special Misalignment x 10 (ie: 15 is for +/- 1.5mm)
- __ Leave Blank. Standard Capability



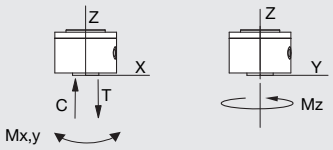


Specifications	CH-110	
Centering force @100psi [7 bar]	373 lbs.	1660 N
Maximum payload	30.8 lbs.	14 Kg
Misalignment Capability	±0.25 in.	±6.5 mm
Weight	4.6 lbs.	2.10 Kg
Pressure Range (without springs)	30-100 psi	2-7 bar
Pressure Range (with springs)	60-100 psi	4-7 bar
Cylinder bore	3.0 in.	76 mm
Displacement	3.42 in^3	56 cm^3
Actuation	0.1 sec. /0.1 sec.	
Repeatability	±0.0016 in.	±0.04 mm
Angular repeatability	±15mn	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

Loading Information



Loading Capacity	Imperial	Metric
Maximum Tensile **T**	43 lbs.	190 N
Maximum Breakaway Compressive **C**	43 lbs.	190 N
Maximum Breakaway Moment **Mx**	106 in.-lbs.	12 Nm
Maximum Breakaway Moment **My**	106 in.-lbs.	12 Nm
Maximum Breakaway Moment **Mz**	159 in.-lbs.	18 Nm

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — TOOL PLATE

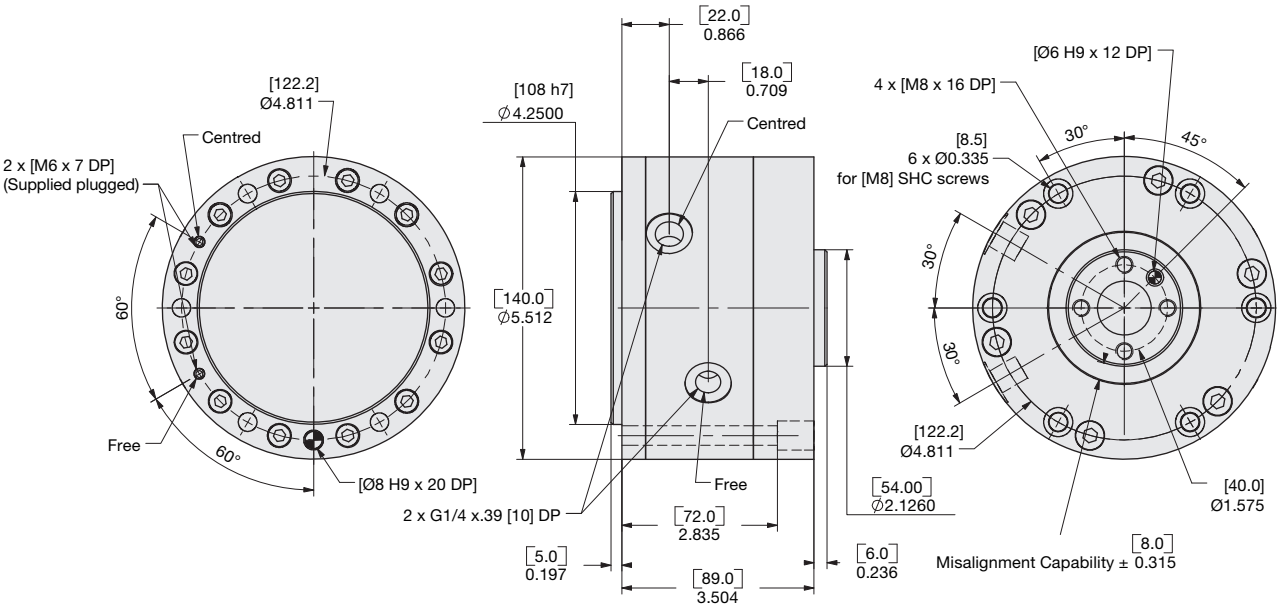
CH-110P - ___ - I - ___

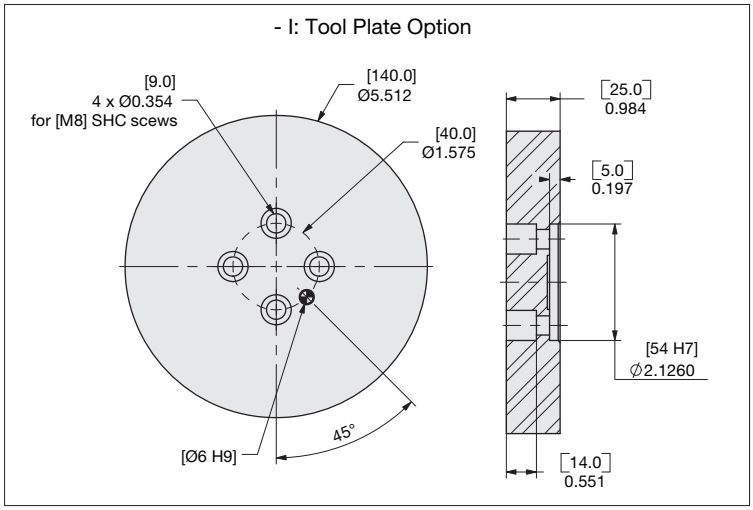
SPRING ASSIST — MISALIGNMENT

SPRING
- **RA** Tool Recentering
- **RL** Tool Release
- __ Leave Blank. No Spring Option (standard)

MISALIGNMENT
- **XX** Special Misalignment x 10 (ie: 15 is for +/- 1.5mm)
- __ Leave Blank. Standard Capability

For more information call us at: **1.888.DESTACO or 248.836.6700** Fax: **248.836.6901** Visit us on the Internet at: **www.destaco.com**





Specifications	CH-140	
Centering force @100psi [7 bar]	712 lbs.	3170 N
Maximum payload	66.1 lbs.	30 Kg
Misalignment Capability	±0.31 in.	±8 mm
Weight	9.5 lbs.	4.31 Kg
Pressure Range (without springs)	30-100 psi	2-7 bar
Pressure Range (with springs)	60-100 psi	4-7 bar
Cylinder bore	4.13 in.	105 mm
Displacement	9.03 in^3	148 cm3
Actuation	0.2 sec. /0.2 sec.	
Repeatability	±0.0024 in.	±0.06 mm
Angular repeatability	±20mn	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

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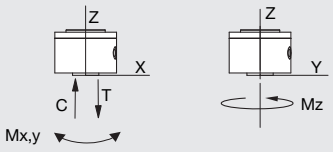


Loading Capacity	Imperial	Metric
Maximum Tensile **T**	50 lbs.	225 N
Maximum Breakaway Compressive **C**	50 lbs.	225 N
Maximum Breakaway Moment **Mx**	168 in.-lbs.	19 Nm
Maximum Breakaway Moment **My**	168 in.-lbs.	19 Nm
Maximum Breakaway Moment **Mz**	177 in.-lbs.	20 Nm

How to Order: (Order Accessories separately from Basic Model)

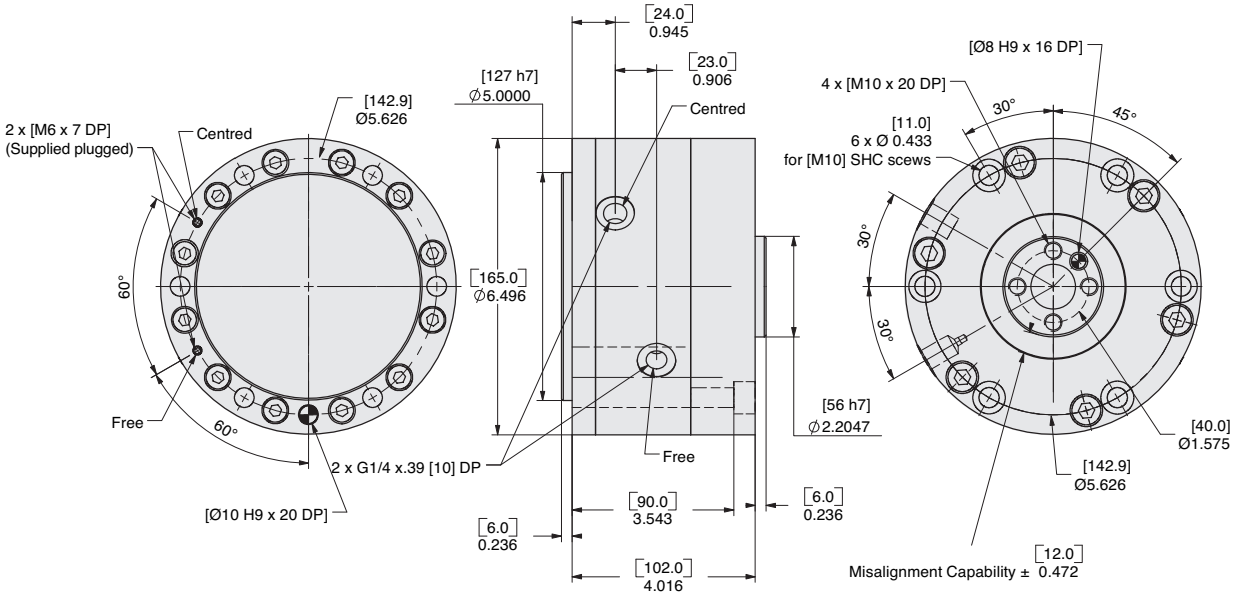
BASIC MODEL — TOOL PLATE

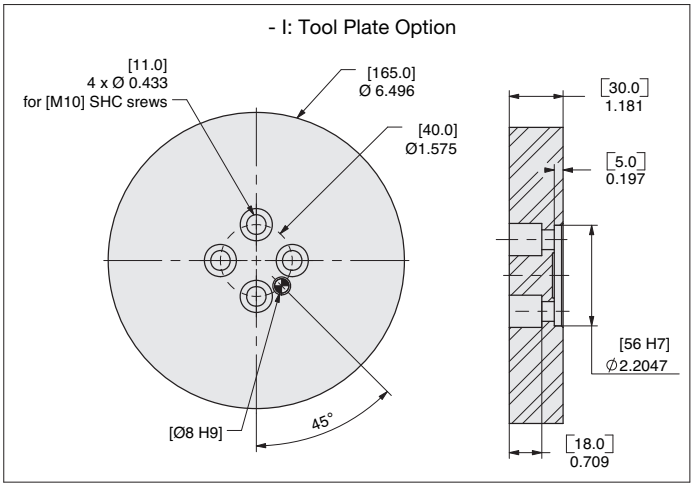
CH-140P - ☐ - I - ☐

SPRING ASSIST — MISALIGNMENT

SPRING
- **RA** Tool Recentering
- **RL** Tool Release
- __ Leave Blank. No Spring Option (standard)

MISALIGNMENT
- **XX** Special Misalignment x 10 (ie: 15 is for +/- 1.5mm)
- __ Leave Blank. Standard Capability





Specifications	CH-165	
Centering force @100psi [7 bar]	931 lbs.	4140 N
Maximum payload	88.2 lbs.	40 Kg
Misalignment Capability	±0.47 in.	±12 mm
Weight	19.2 lbs.	8.7 Kg
Pressure Range (without springs)	30-100 psi	2-7 bar
Pressure Range (with springs)	60-100 psi	4-7 bar
Cylinder bore	4.72 in.	120 mm
Displacement	14.40 in^3	236 cm^3
Actuation	0.36 sec. /0.36 sec.	
Repeatability	±0.0024 in.	±0.06 mm
Angular repeatability	±20mn	

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Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
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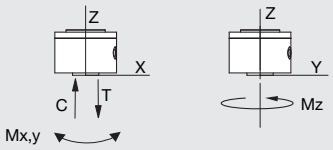
Loading Information



Loading Capacity	Imperial	Metric
Maximum Tensile **T**	52 lbs.	230 N
Maximum Breakaway Compressive **C**	52 lbs.	230 N
Maximum Breakaway Moment **Mx**	203 in.-lbs.	23 Nm
Maximum Breakaway Moment **My**	203 in.-lbs.	23 Nm
Maximum Breakaway Moment **Mz**	248 in.-lbs.	28 Nm

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL — TOOL PLATE

CH-165P - ___ - I - ___

SPRING ASSIST — MISALIGNMENT

SPRING
- **RA** Tool Recentering
- **RL** Tool Release
- __ Leave Blank. No Spring Option (standard)

MISALIGNMENT
- **XX** Special Misalignment x 10 (ie: 15 is for +/- 1.5mm)
- __ Leave Blank. Standard Capability

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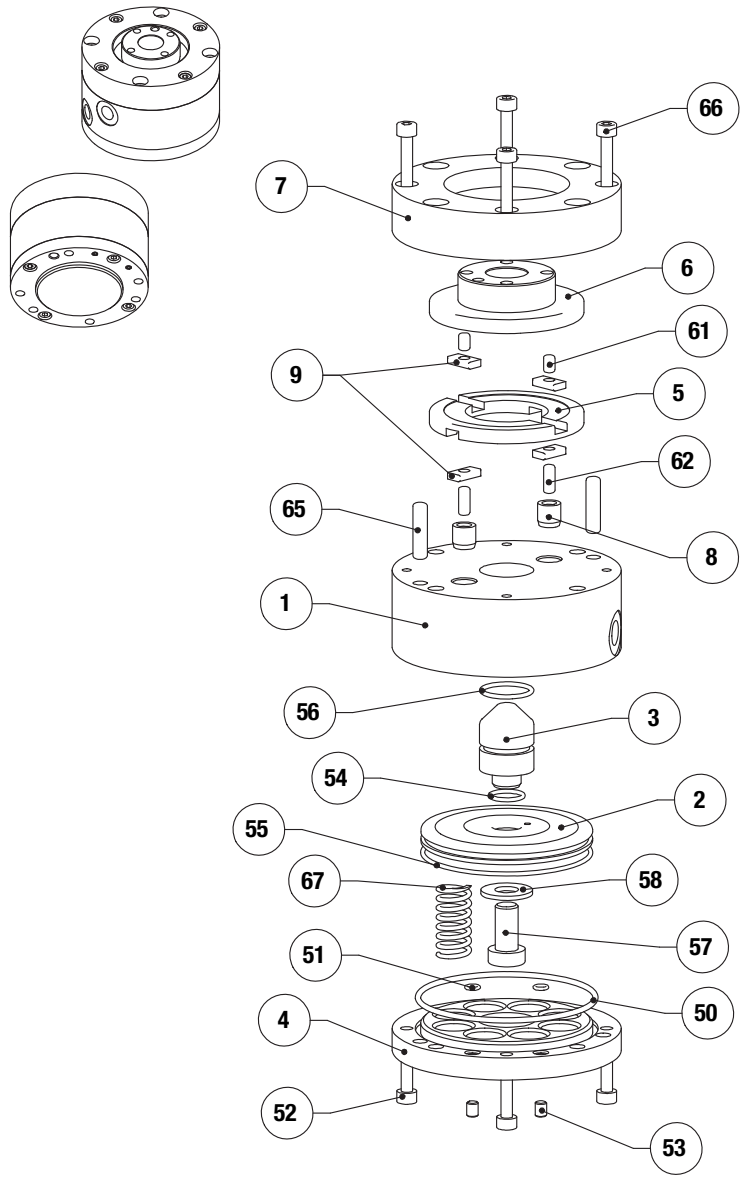
CH Series Exploded View



Item	Qty	Name
1	1	Body
2	1	Piston
3	1	Centering cone
4	1	Cap
5	1	Crossed ring
6	1	Output flange
7	1	Bottom case
8	2	Sleeve
9	4	Key
50	1	O-ring, Cap
51	2	O-ring, Cap
52	4	SS screw, Cap
53	2	SHC screw, Cap
54	1	O-ring, Piston
55	1	O-ring, Piston
56	1	O-ring, Centering cone
57	1	LHC screw, Piston
58	1	Washer, Piston
61	2	Pin, Key
62	2	Pin, Sleeve
65	2	Pin, Body
66	4	SHC screw, Flask
67	6	Spring

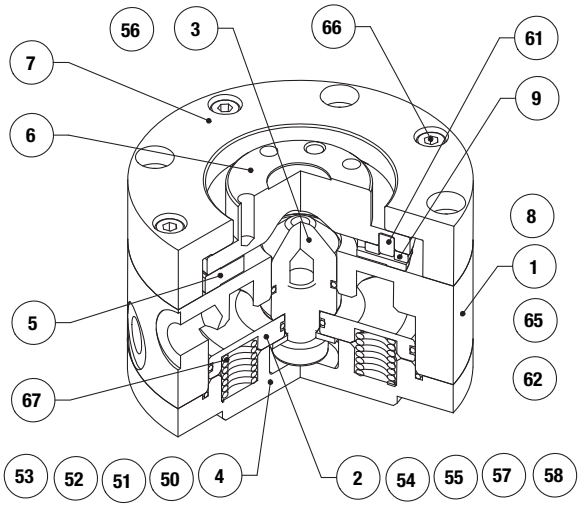
NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedures

1) Press-in the bushing (#8) into the body (#1)
2) Insert the pins (#65) into the body (#1)
3) Lubricate and insert the pins (#62) into the bushings (#8)
4) Lubricate and insert the keys (#9) into the pins (#62)
5) Lubricate and assemble the crossed ring (#5) onto the body (#1). The keys (#9) have to be positioned into the slots of the crossed ring
6) Insert the pins (#61) into the output flange (#6)
7) Lubricate and insert the keys (#9) into the pins (#61)
8) Assemble the sub assembly output flange and keys on the crossed ring (#5). The keys (#9) have to be positioned into the slots of the crossed ring
9) Mount the bottom case (#7) onto the body, positioning with the pins (#65).
10) Fasten the bottom case (#7) using the screws (#66) with thread locker
11) Insert the O-Ring (#56) into the centering cone (#3)
12) Insert the O-Ring (#54) into the inside groove of the piston (#2)
13) Insert the O-Ring (#55) into the outside groove of the piston (#2)
14) Assemble the piston (#2) with the centering cone (#3). For -RL option, the piston counterbore holes have to face the body counterbore holes. Opposite mounting for -RA option.
15) Fasten the centering cone (#3) with the piston (#2) using the washer (#58) and the screw (#57) with thread locker
16) For –RL option, insert the springs (#67) into the body and piston counterbore holes.
17) Insert the piston + centering cone sub assembly into the body
18) For –RA option, insert the springs (#67) into the cap and piston counterbore holes.
19) Insert the O-Ring (#50) into cap groove (#4)
20) Insert the O-Ring (#51) into counterbore holes of the cap (#4)
21) Screw the SS screws into the cap (#4) with thread locker
22) Locate and insert the cap (#4) into the body (#1) using the screws (52) with thread locker.

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon® Based Grease | GLUE Super Bonder | Third Angle Projection

CH Series Assembled View



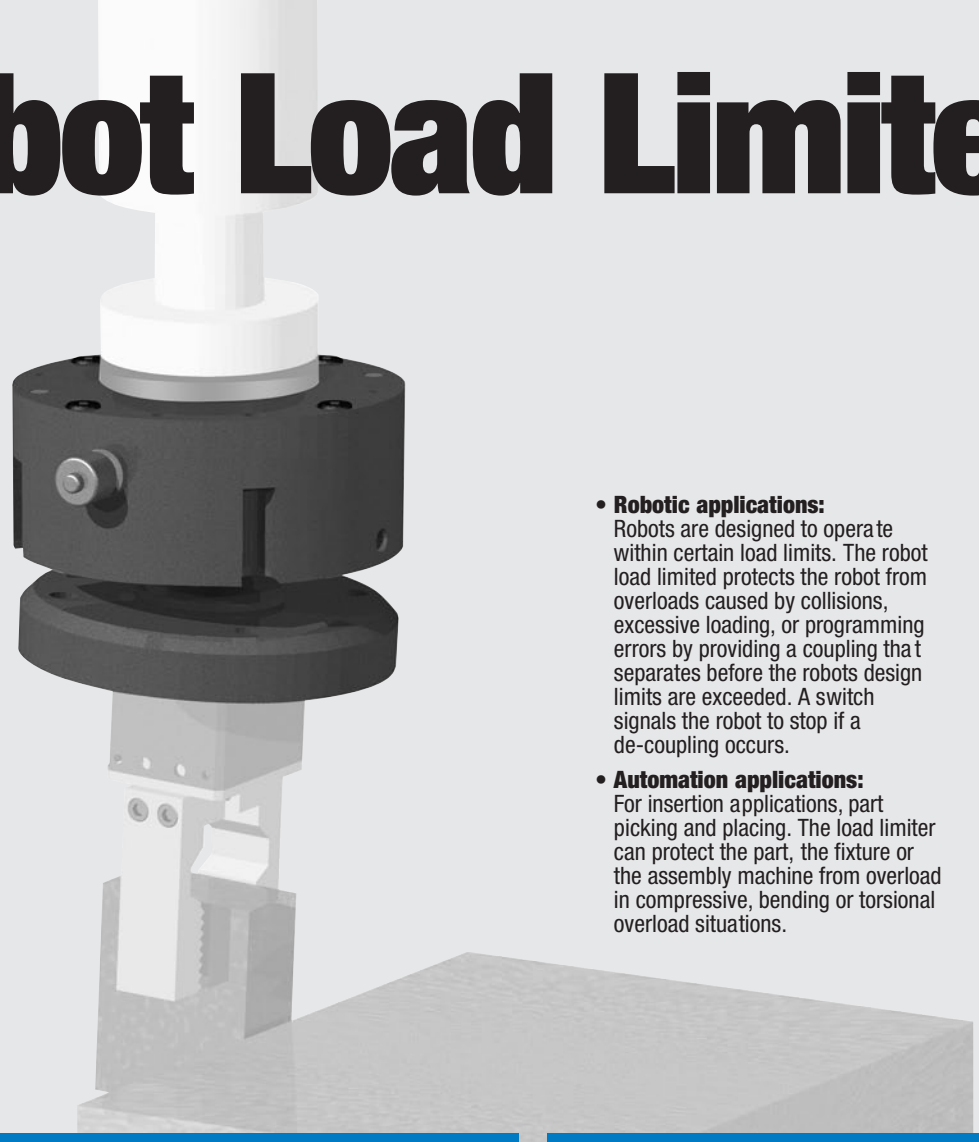
Item	Qty	Name
1	1	Body
2	1	Piston
3	1	Centering cone
4	1	Cap
5	1	Crossed ring
6	1	Output flange
7	1	Bottom case
8	2	Sleeve
9	4	Key
50	1	O-ring, Cap
51	2	O-ring, Cap
52	4	SS screw, Cap
53	2	SHC screw, Cap
54	1	O-ring, Piston
55	1	O-ring, Piston
56	1	O-ring, Centering cone
57	1	LHC screw, Piston
58	1	Washer, Piston
61	2	Pin, Key
62	2	Pin, Sleeve
65	2	Pin, Body
66	4	SHC screw, Flask
67	6	Spring

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection

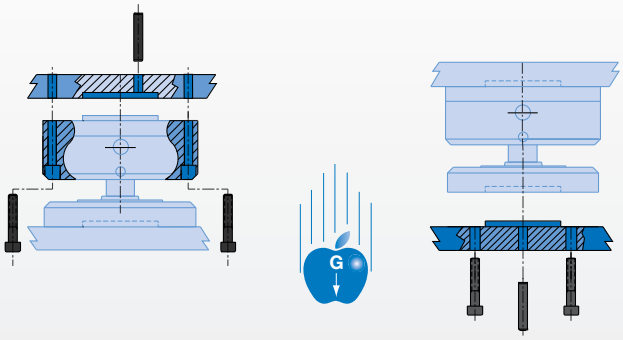
DESIGN NOTES

Robot Load Limiters



- **Robotic applications:** Robots are designed to operate within certain load limits. The robot load limited protects the robot from overloads caused by collisions, excessive loading, or programming errors by providing a coupling that separates before the robots design limits are exceeded. A switch signals the robot to stop if a de-coupling occurs.
- **Automation applications:** For insertion applications, part picking and placing. The load limiter can protect the part, the fixture or the assembly machine from overload in compressive, bending or torsional overload situations.

Mounting Information:



Robot side has counter bored holes for mounting with a dowel hole and raised boss for location

The tool side has tapped holes for mounting and a pilot hole and dowel hole for positioning

Technical Specifications:

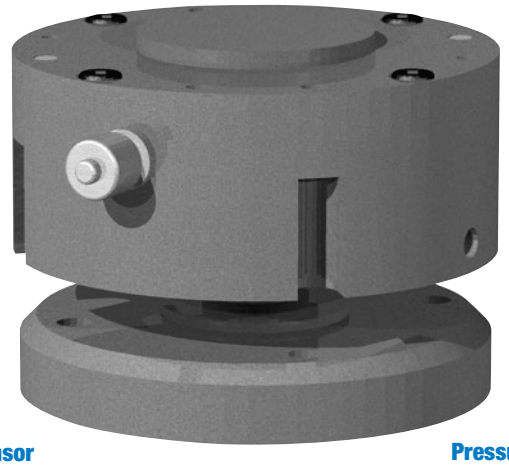
Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	40-100 psi	3-7 bar
Cylinder Type	Non-Conventional	
Valve Required to Operate	3-way, 2-position	
Air Quality Requirements		
Air Filtration	40 Micron or Better	
Air Lubrication	Not Necessary*	
Air Humidity	Low Moisture Content (dry)	
Temperature Operating Range	-20°~180° F	30°~80° C
Maintenance Specifications†		
Expected Life		
Normal Application	5 million cycles	
w/ Preventative Maintenance	10+ million cycles	
Field Repairable	Yes	
Seal Repair Kits Available	Yes	

Application Restrictions
- Dirty or gritty environments
- Machining operations generating chips
- Environments with loose particulate

†See Maintenance Section

Product Features

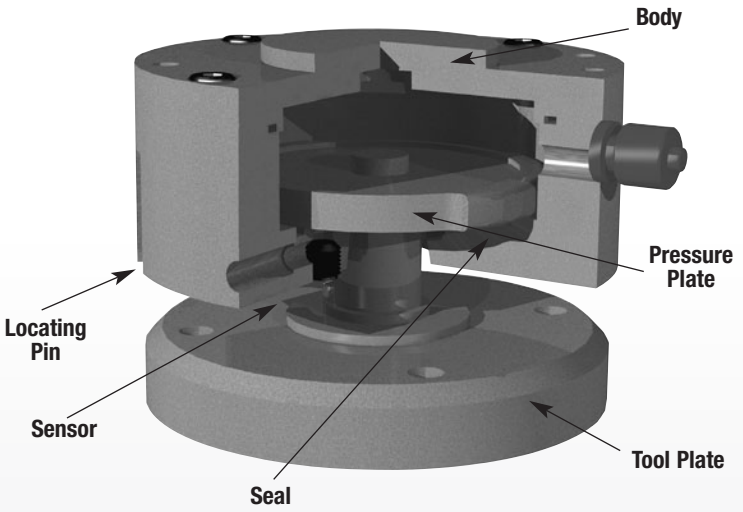
Quality Components
Anodized aluminum components

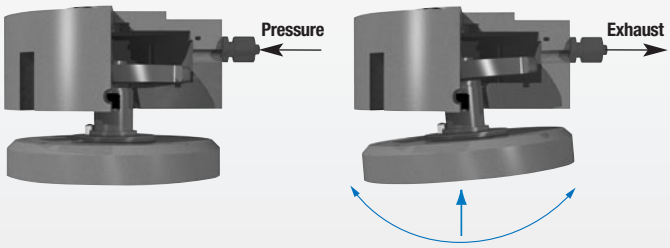


Built-in Sensor
Built in proximity sensor for detecting de-coupling

Pressure Plate
Accurate pressure plate locating for repeatable re-coupling.

Operating Principle





- The robot limiter is comprised of two halves, the robot side and the tool side, which can be separated from one another but not detached.
- The two halves are held together by compressed air forcing the pressure plate to seal on the inside surface of the robot half.
- The force required to breakaway the unit is proportional to the air pressure.
- In the event of an overload the sensor detects the motion of the pressure plate and can signal the robot or assembly machine and the valve supplying pressure to the load limiter to shut down.
- When the collision is cleared and the tool is manually returned to the normal orientation the sensor can reactivate the valve to re-pressurize the device.

Style-ULS Load Limiter

Size-80

Style:	**ULS-80**	
Axial Breakaway:	240 lbs.	1068 N
Weight:	1.3 lbs.	0.59 Kg

See Page 7.90

Style-ULS Load Limiter

Size-100

Style:	**ULS-100**	
Axial Breakaway:	330 lbs.	1468 N
Weight:	1.87 lbs.	0.85 Kg

See Page 7.91

Style-ULS Load Limiter

Size-125

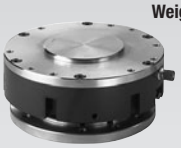
Style:	**ULS-125**	
Axial Breakaway:	620 lbs.	2750 N
Weight:	3.52 lbs.	1.6 Kg

See Page 7.92

Style-ULS Load Limiter

Size-160

Style:	**ULS-160**	
Axial Breakaway:	1125 lbs.	5000 N
Weight:	7.1 lbs.	3.2 Kg



See Page 7.93

Style-ULS Load Limiter

Size-200

Style:	**ULS-200**	
Axial Breakaway:	1750 lbs.	7784 N
Weight:	21.56 lbs.	9.8 Kg

See Page 7.94

Style-ULS Load Limiter

Size-250

Style:	**ULS-250**	
Axial Breakaway:	2025 lbs.	9000 N
Weight:	35 lbs.	16 Kg

See Page 7.95

Style-ULS Load Limiter

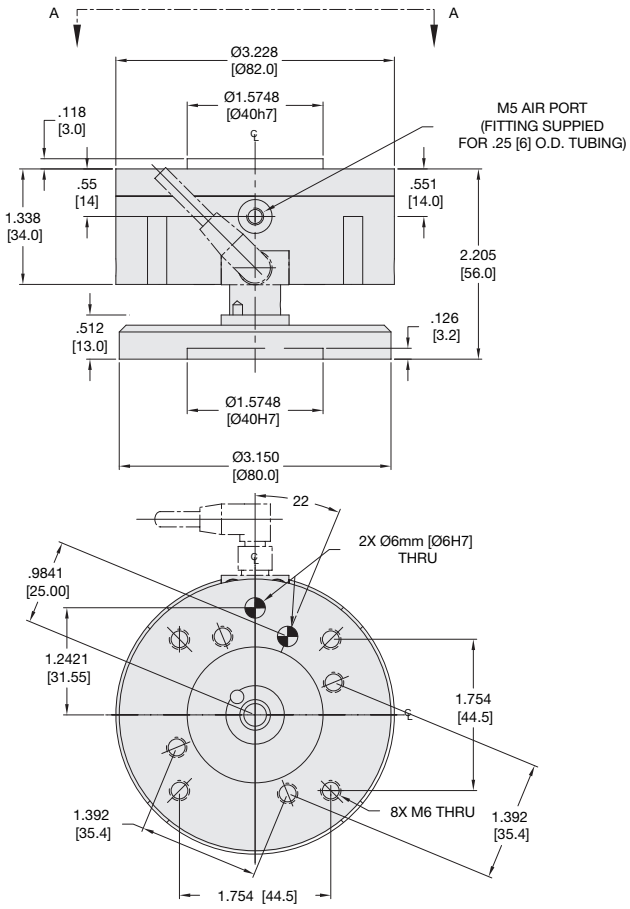
Size-300

Style:	**ULS-300**	
Axial Breakaway:	2475 lbs.	11,000 N
Weight:	53 lbs.	24 Kg

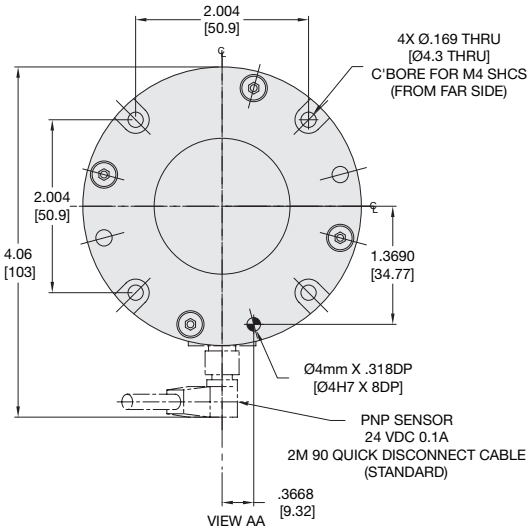
See Page 7.96

ULS-80
ROBOT LOAD LIMITER SERIES

Robohand



Specifications	ULS-80	
Maximum Payload	8.8 lbs.	4.0 Kg
Rotational Compliance (X and Y axis)	10°	10°
Rotational Compliance (Z axis)	360°	360°
Axial Compliance (Z axis)	0.47 in.	12 mm
Weight	1.3 lbs.	0.59 Kg
Pressure Range (locked cylinder)	15-100 psi	1-7 bar
Temperature Range	-5°~160° F	-20°~70° C
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	3-way, 2-position	



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Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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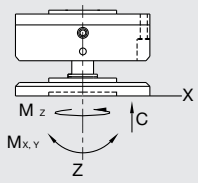


Loading Capacity at 90 psi 6 bar	Imperial	Metric
Maximum Breakaway Compressive **C**	240 lbs.	1068 N
Maximum Breakaway Moment **Mx**	210 in.-lbs.	24 Nm
Maximum Breakaway Moment **My**	210 in.-lbs.	24 Nm
Maximum Breakaway Moment **Mz**	210 in.-lbs.	24 Nm

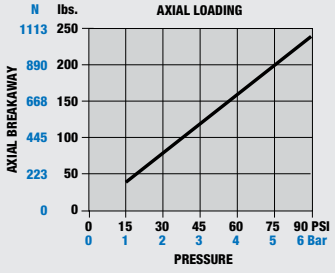
How to Order: (Order Accessories separately from Basic Model)

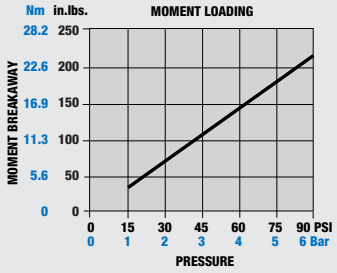
BASIC MODEL

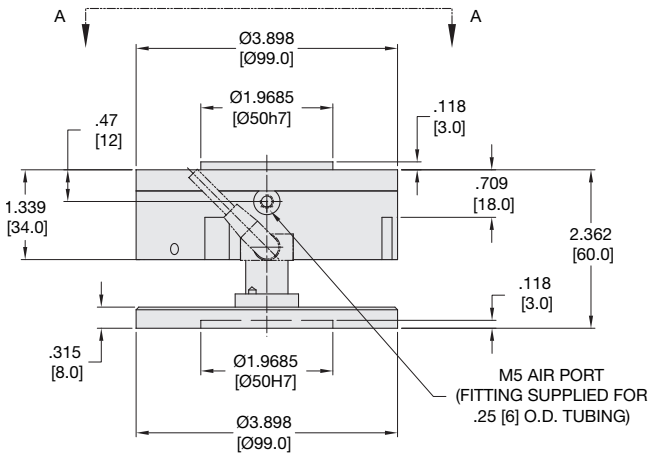
ULS-80

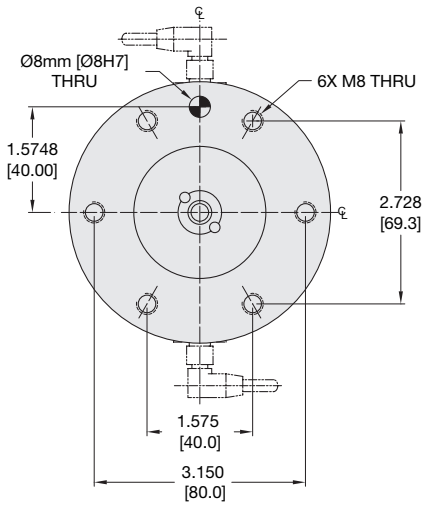
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-137**	**1**

Maximum Overload

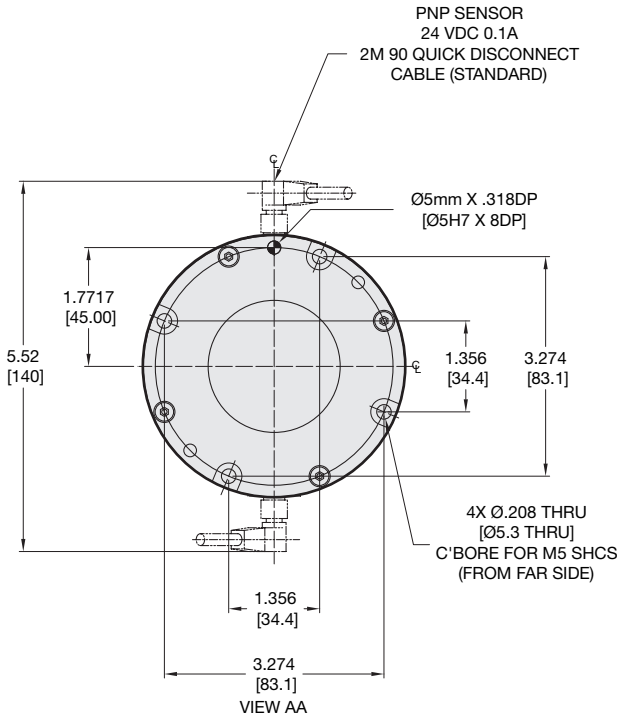








Specifications	ULS-100	
Maximum Payload	17.6 lbs.	8.0 Kg
Rotational Compliance (X and Y axis)	12°	12°
Rotational Compliance (Z axis)	360°	360°
Axial Compliance (Z axis)	0.56 in.	14 mm
Weight	1.87 lbs.	0.85 Kg
Pressure Range (locked cylinder)	15-100 psi	1-7 bar
Temperature Range	-5°~160° F	-20°~70° C
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	3-way, 2-position	



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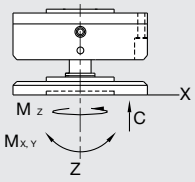
Loading Information



Loading Capacity at 90 psi 6 bar	Imperial	Metric
Maximum Breakaway Compressive **C**	330 lbs.	1468 N
Maximum Breakaway Moment **Mx**	350 in.-lbs.	40 Nm
Maximum Breakaway Moment **My**	350 in.-lbs.	40 Nm
Maximum Breakaway Moment **Mz**	350 in.-lbs.	40 Nm

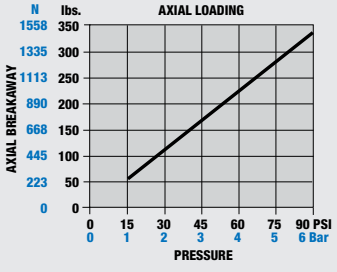
How to Order: (Order Accessories separately from Basic Model)

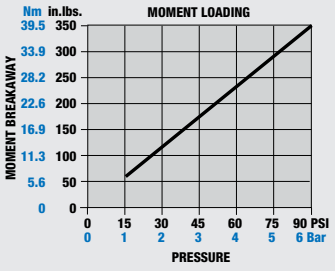
BASIC MODEL

ULS-100

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-138**	**1**

Maximum Overload

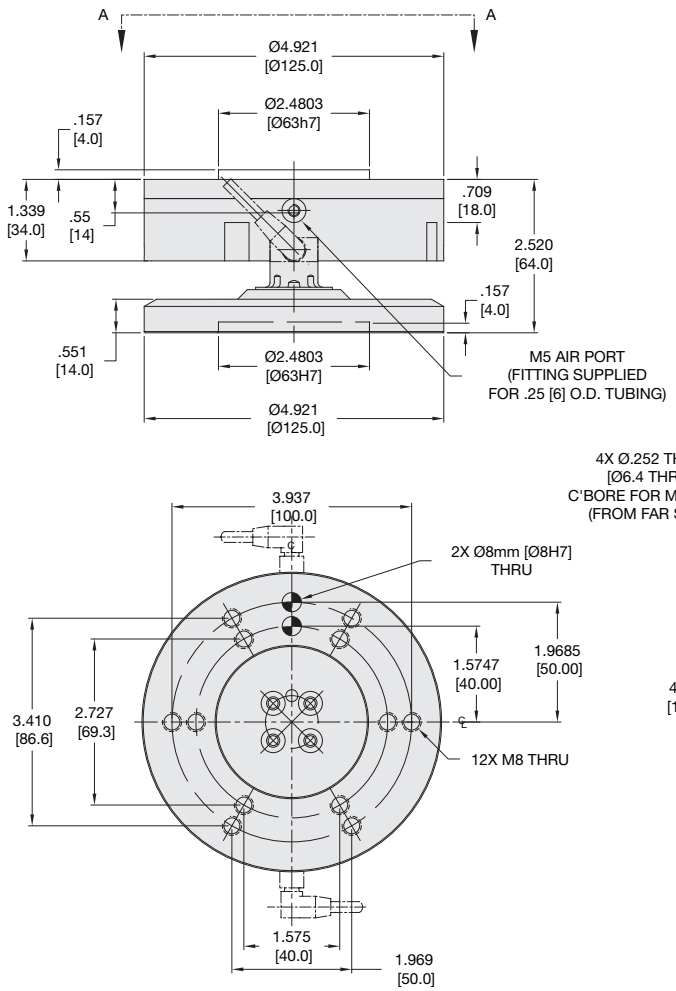




ULS-125
ROBOT LOAD LIMITER SERIES

Robohand

Specifications	ULS-125	
Maximum Payload	26.5 lbs.	12.0 Kg
Rotational Compliance (X and Y axis)	10°	10°
Rotational Compliance (Z axis)	360°	360°
Axial Compliance (Z axis)	0.47 in.	12 mm
Weight	3.52 lbs.	1.60 Kg
Pressure Range (locked cylinder)	15-100 psi	1-7 bar
Temperature Range	-5°~160° F	-20°~70° C
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	3-way, 2-position	



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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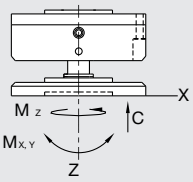


Loading Capacity at 90 psi 6 bar	Imperial	Metric
Maximum Breakaway Compressive **C**	620 lbs.	2750 N
Maximum Breakaway Moment **Mx**	960 in.-lbs.	109 Nm
Maximum Breakaway Moment **My**	960 in.-lbs.	109 Nm
Maximum Breakaway Moment **Mz**	960 in.-lbs.	109 Nm

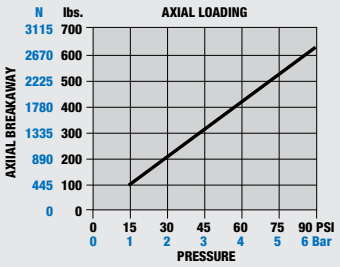
How to Order: (Order Accessories separately from Basic Model)

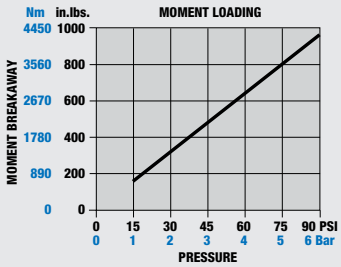
BASIC MODEL

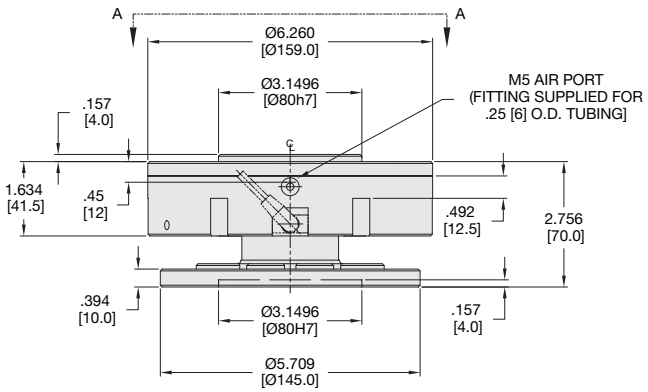
ULS-125

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-139**	**1**

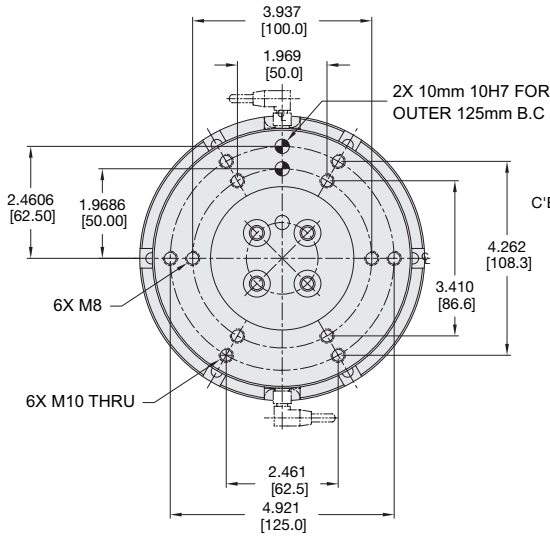
Maximum Overload

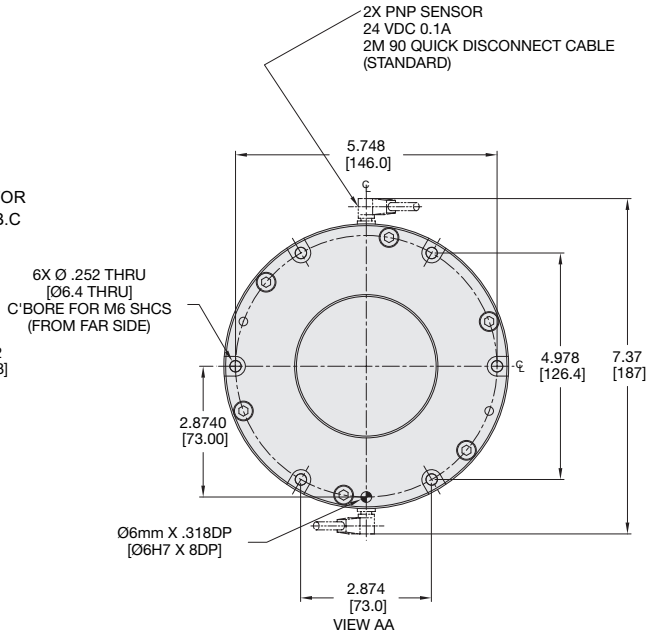






Specifications	ULS-160	
Maximum Payload	44.1 lbs.	20 Kg
Rotational Compliance (X and Y axis)	7°	7°
Rotational Compliance (Z axis)	360°	360°
Axial Compliance (Z axis)	0.57 in.	14.5 mm
Weight	7.1 lbs.	3.2 Kg
Pressure Range (locked cylinder)	15-100 psi	1-7 bar
Temperature Range	-5°~160° F	-20°~70° C
Repeatability	± 0.002in.	± 0.05 mm
Valve required to actuate	3-way, 2-position	





UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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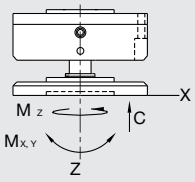


Loading Capacity at 90 psi 6 bar	Imperial	Metric
Maximum Breakaway Compressive **C**	1125 lbs.	5000 N
Maximum Breakaway Moment **Mx**	2100 in.-lbs.	237 Nm
Maximum Breakaway Moment **My**	2100 in.-lbs.	237 Nm
Maximum Breakaway Moment **Mz**	2100 in.-lbs.	237 Nm

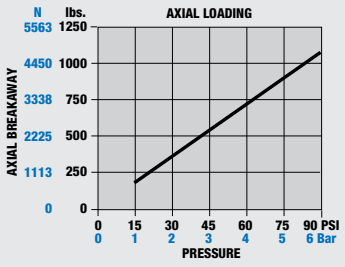
How to Order: (Order Accessories separately from Basic Model)

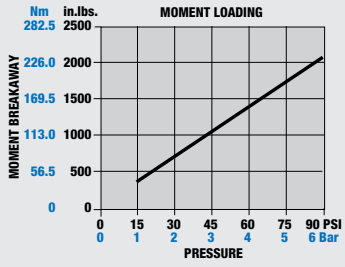
BASIC MODEL

ULS-160

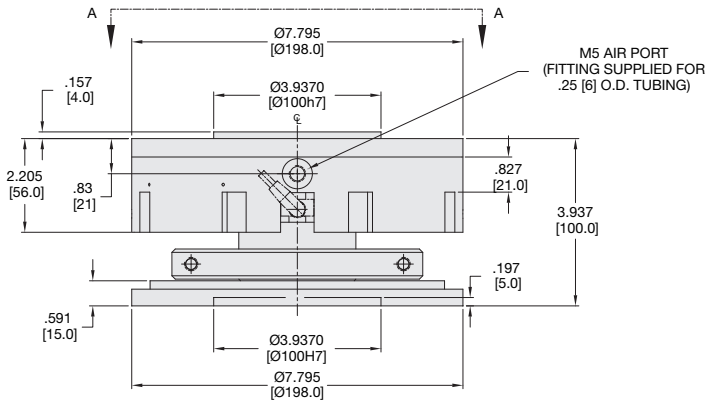
PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-140**	**1**

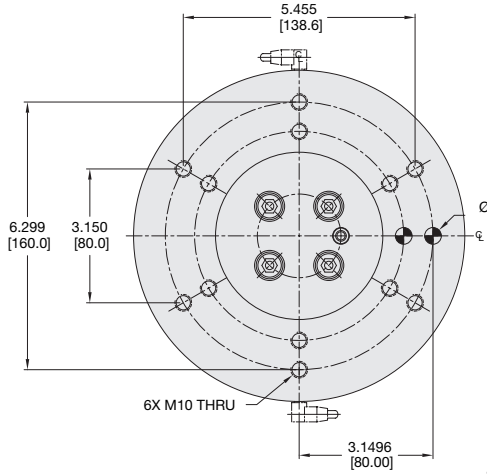
Maximum Overload

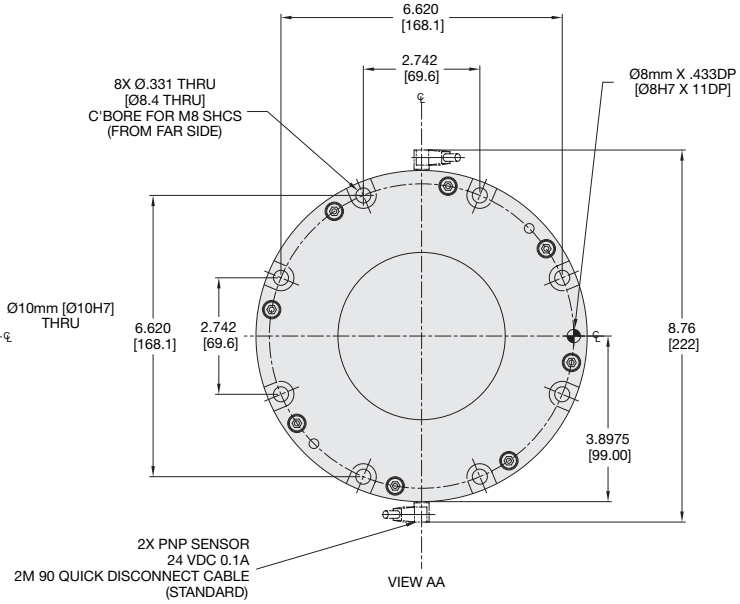




ULS-200
ROBOT LOAD LIMITER SERIES







Specifications	ULS-200	
Maximum Payload	121.3 lbs.	55.0 Kg
Rotational Compliance (X and Y axis)	4°	4°
Rotational Compliance (Z axis)	360°	360°
Axial Compliance (Z axis)	0.38 in.	9.50 mm
Weight	21.56 lbs.	9.8 Kg
Pressure Range (locked cylinder)	15-100 psi	1-7 bar
Temperature Range	-5°~160° F	-20°~70° C
Repeatability	±0.004 in.	±0.10 mm
Valve required to actuate	3-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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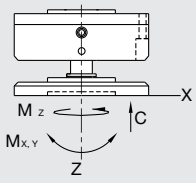


Loading Capacity at 90 psi 6 bar	Imperial	Metric
Maximum Breakaway Compressive **C**	1750 lbs.	7784 N
Maximum Breakaway Moment **Mx**	4500 in.-lbs.	509 Nm
Maximum Breakaway Moment **My**	4500 in.-lbs.	509 Nm
Maximum Breakaway Moment **Mz**	4500 in.-lbs.	509 Nm

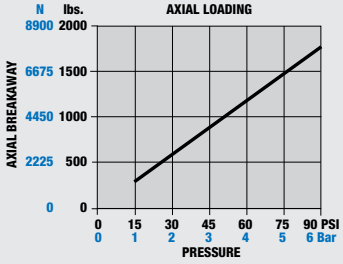
How to Order: (Order Accessories separately from Basic Model)

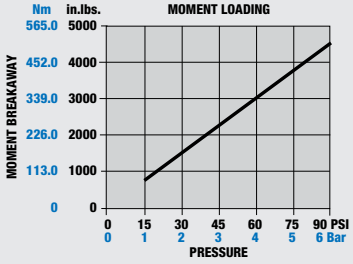
BASIC MODEL

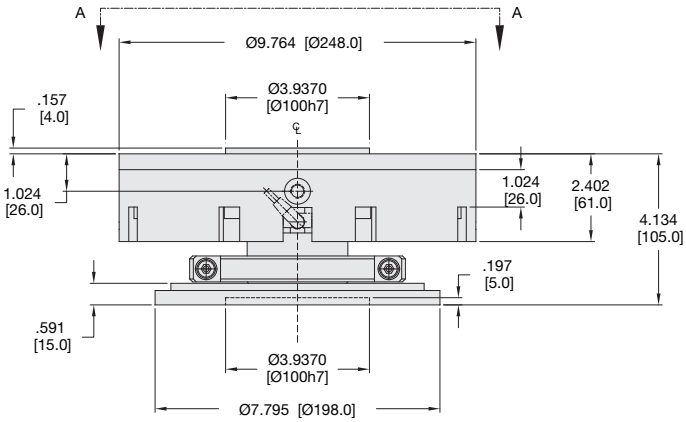
ULS-200

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-141**	**1**

Maximum Overload

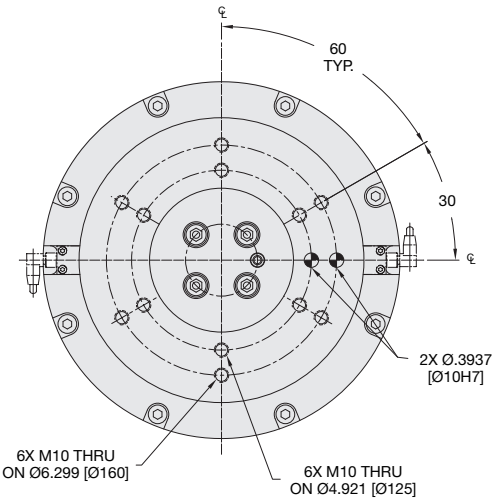


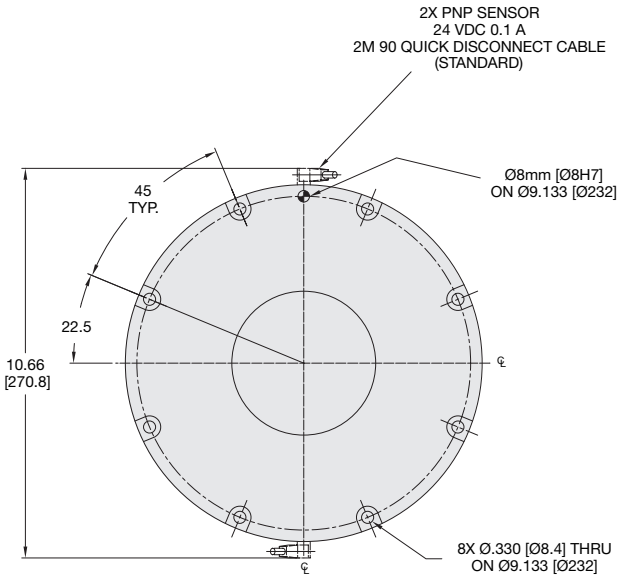




Specifications

	ULS-250	
Maximum Payload	176.4 lbs.	80.0 Kg
Rotational Compliance (X and Y axis)	5°	5°
Rotational Compliance (Z axis)	360°	360°
Axial Compliance (Z axis)	0.63 in.	16 mm
Weight	35 lbs.	16 Kg
Pressure Range (locked cylinder)	15-100 psi	1-7 bar
Temperature Range	-5°~160° F	-20°~70° C
Repeatability	±0.004 in.	±0.10 mm
Valve required to actuate	3-way, 2-position	

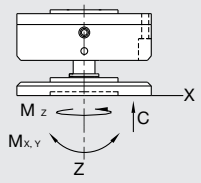




UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information



Loading Capacity at 90 psi 6 bar	Imperial	Metric
Maximum Breakaway Compressive **C**	2025 lbs.	9000 N
Maximum Breakaway Moment **Mx**	5400 in.-lbs.	610 Nm
Maximum Breakaway Moment **My**	5400 in.-lbs.	610 Nm
Maximum Breakaway Moment **Mz**	5400 in.-lbs.	610 Nm

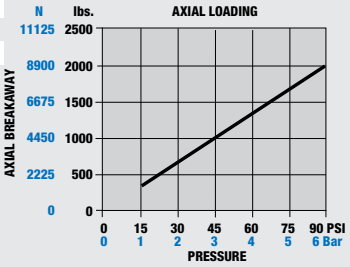
How to Order: (Order Accessories separately from Basic Model)

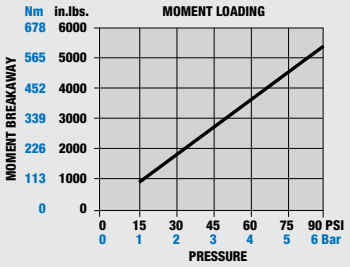
BASIC MODEL

ULS-250

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	SLKT-434	1

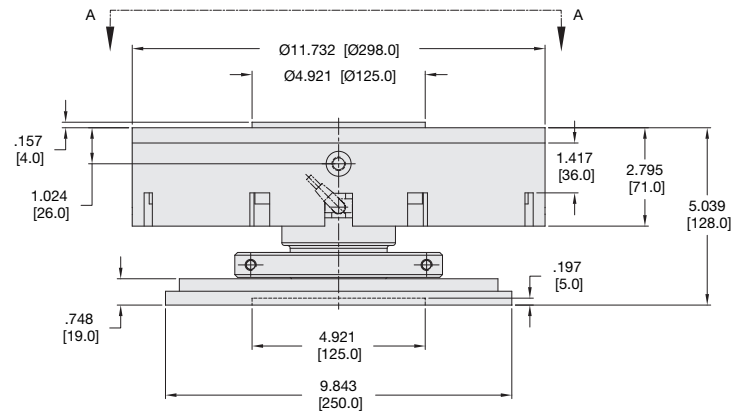
Maximum Overload



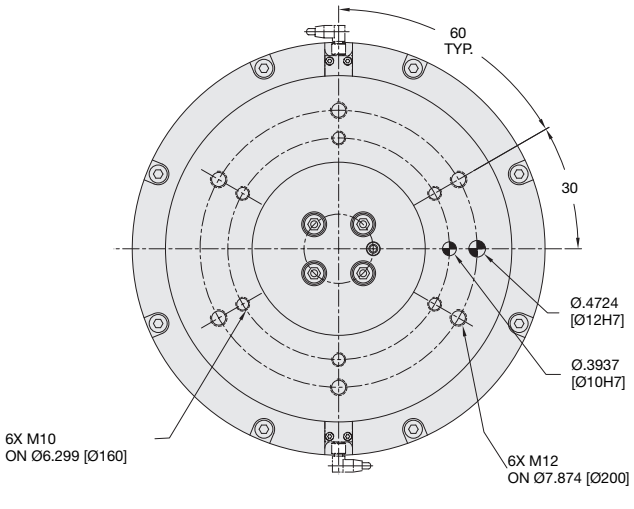


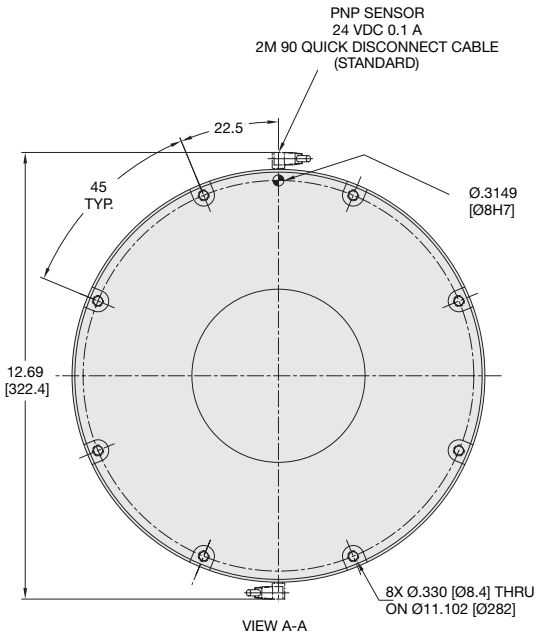
ULS-300
ROBOT LOAD LIMITER SERIES

Robohand



Specifications	ULS-300	
Maximum Payload	264.6 lbs.	120.0 Kg
Rotational Compliance (X and Y axis)	6°	6°
Rotational Compliance (Z axis)	360°	360°
Axial Compliance (Z axis)	0.98 in.	25 mm
Weight	52.8 lbs.	24.0 Kg
Pressure Range (locked cylinder)	15-100 psi	1-7 bar
Temperature Range	-5°~160° F	-20°~70° C
Repeatability	±0.008 in.	±0.20 mm
Valve required to actuate	3-way, 2-position	





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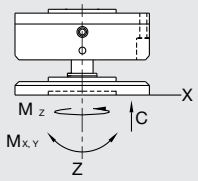


Loading Capacity at 90 psi 6 bar	Imperial	Metric
Maximum Breakaway Compressive **C**	2475 lbs.	11,000 N
Maximum Breakaway Moment **Mx**	6195 in.-lbs.	700 Nm
Maximum Breakaway Moment **My**	6195 in.-lbs.	700 Nm
Maximum Breakaway Moment **Mz**	6195 in.-lbs.	700 Nm

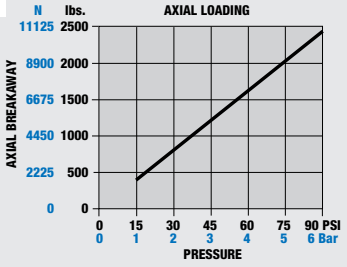
How to Order: (Order Accessories separately from Basic Model)

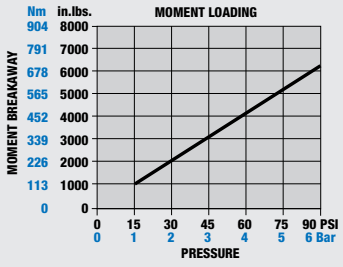
BASIC MODEL

ULS-300

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	SLKT-433	1

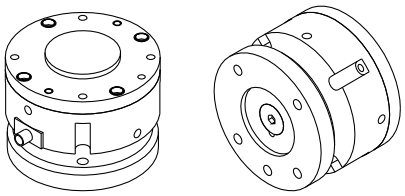
Maximum Overload





ULS SERIES

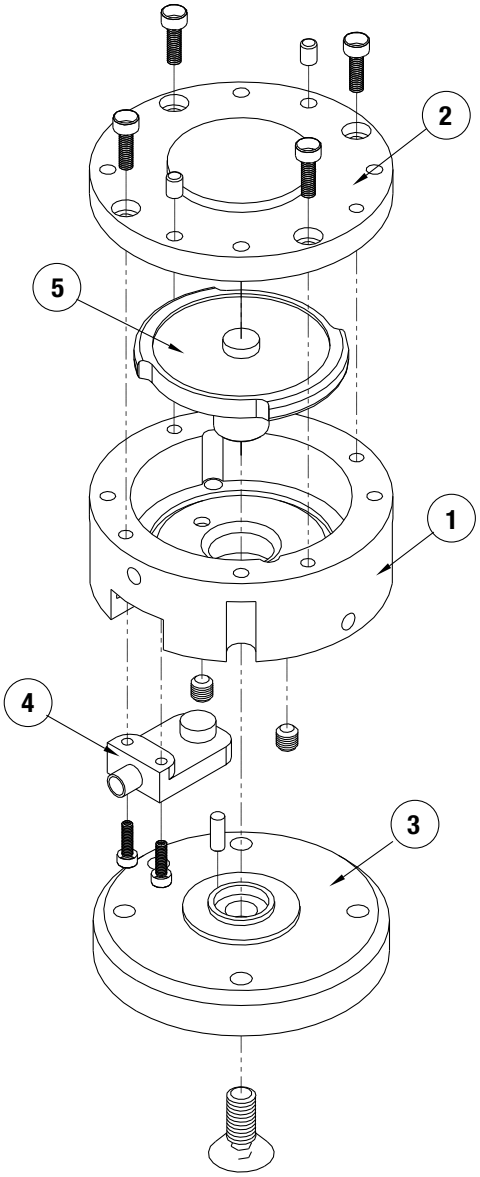
7.96

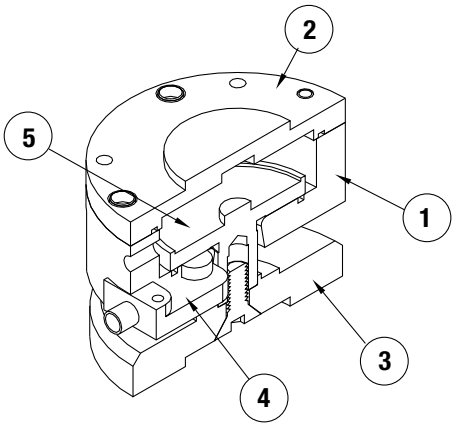


Item	Qty	Name
01	1	Body
02	1	Top Plate
03	1	Bottom Plate
04	1	Sensor
05	1	Pressure Plate

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

● **Seal Repair Kit Order #'s See Product Data Sheets**





SK Seal Kit Items

THREAD LOCK Thread Locker

KRYTOX Krytox™ Lubricant

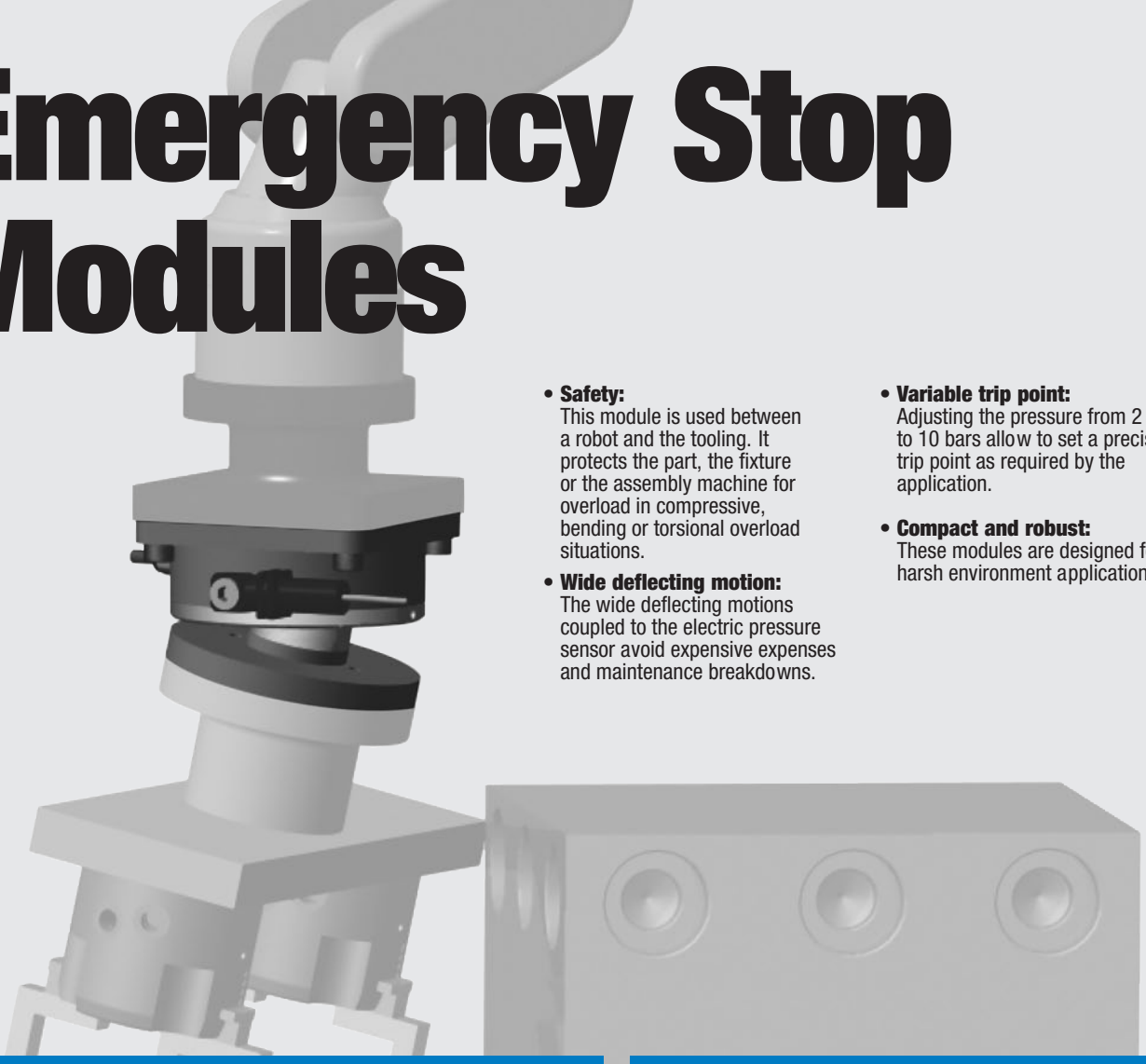
O Lightweight Machine Oil

G Teflon® Based Grease

GLUE Super Bonder

Third Angle Projection

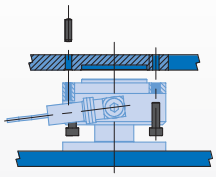
Emergency Stop Modules



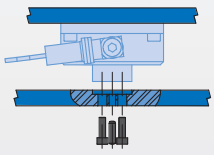
- **Safety:** This module is used between a robot and the tooling. It protects the part, the fixture or the assembly machine for overload in compressive, bending or torsional overload situations.
- **Wide deflecting motion:** The wide deflecting motions coupled to the electric pressure sensor avoid expensive expenses and maintenance breakdowns.
- **Variable trip point:** Adjusting the pressure from 2 to 10 bars allow to set a precise trip point as required by the application.
- **Compact and robust:** These modules are designed for harsh environment applications.

Mounting Information:

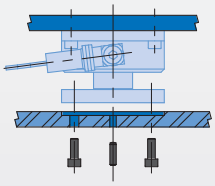
Modules can be mounted & operated in any orientation



The module is located using pilot boss and a dowel pin and assembled with 4 thru body screws



The tooling is located using pilot boss and a dowel pin and assembles with 3 or 4 screws



Using the blank plate allows the customer to locate and assemble its tooling to their convenience

Technical Specifications:

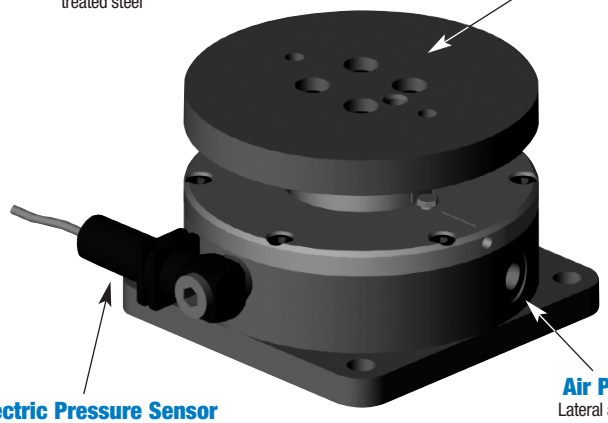
Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	30-145 psi	2-10 bar
Cylinder Type	Non-Conventional	
Dynamic seals	Internally lubricated Buna-N seals	
Valve Required to Operate	0-145 PSI regulator	
Air Quality Requirements		
Air Filtration	40 Micron or Better	
Air Lubrication	Not Necessary*	
Air Humidity	Low Moisture Content (dry)	
Temperature Operating Range	-30°~180° F	-35°~80° C
Maintenance Specifications**		
Expected Life		
Normal Application	5 million cycles	
w/ Preventative Maintenance	10+ million cycles	
Field Repairable	Yes	
Seal Repair Kits Available	Yes	

*Addition of lubrication will greatly increase service life
**See Maintenance Section

Product Features

Quality Components
Made from aluminum alloy with red coat anodization. The modules main components are made of heat treated steel

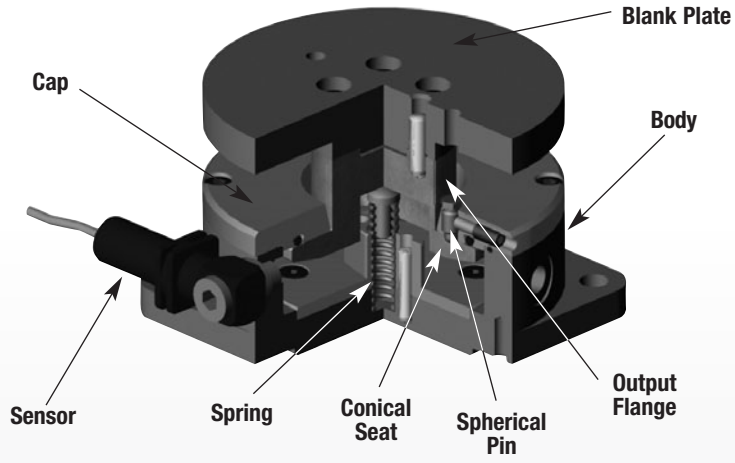
Tooling Attachment
Tooling can be mounted directly on the output flange or using the provided blank flange

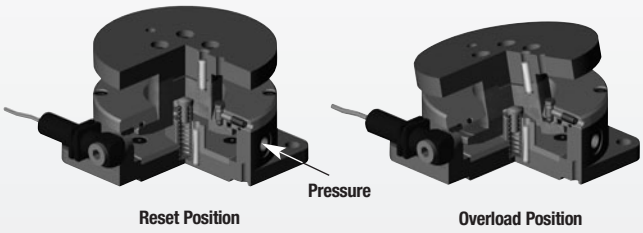


Electric Pressure Sensor
Transmits a signal to the PLC in case of and overload or collision

Air Ports
Lateral air port

Operating Principle





- The conical seat in the output flange and the spherical pin are used to place the module in the home position.
- The pressure inside the chamber applies an effort on the output flange to keep it in the home position.
- When an outside force or moment applied to the output flange is higher then the preset force, the conical seat moves from the spherical pin generating an air leakage.
- The air leakage causes a pressure fall down in the module chamber which is detected by the sensor. The tool reset has to be done manually.

Style- Emergency Stop Modules

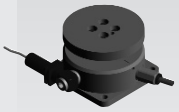
Size-60

Style:	AU-60	
Axial Compliance:	0.28 in.	7 mm
Rotation:	45º	45º
Angular:	12º	12º
Weight:	0.99 lbs.	0.45 Kg

See Page 7.100

Style- Emergency Stop Modules

Size-80



Style:	AU-80	
Axial Compliance:	0.334 in.	8.5 mm
Rotation:	24º	24º
Angular:	12º	12º
Weight:	1.5 lbs.	0.68 Kg

See Page 7.101

Style- Emergency Stop Modules

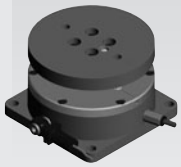
Size-110

Style:	AU-110	
Axial Compliance:	0.531 in.	13.5 mm
Rotation:	31º	31º
Angular:	12º	12º
Weight:	4.6 lbs.	2.1 Kg

See Page 7.102

Style- Emergency Stop Modules

Size-140

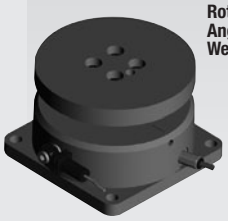


Style:	AU-140	
Axial Compliance:	0.63 in.	16 mm
Rotation:	45º	45º
Angular:	12º	12º
Weight:	8.8 lbs.	4.0 Kg

See Page 7.103

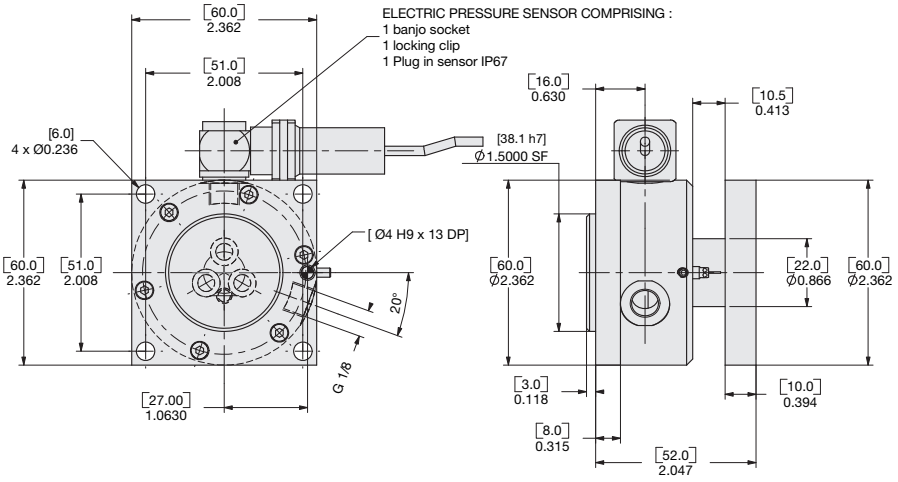
Style- Emergency Stop Modules

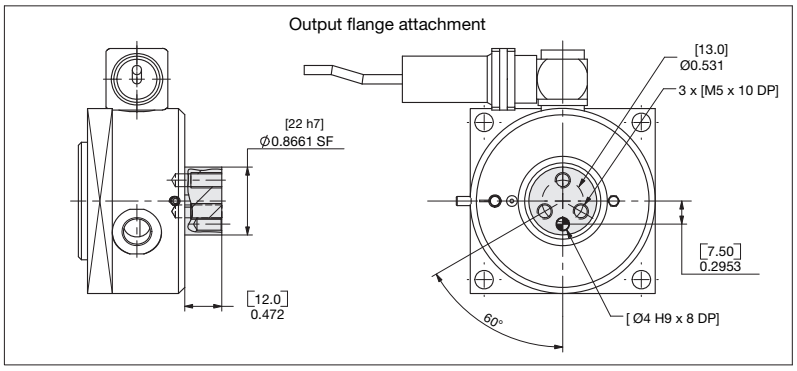
Size-165



Style:	AU-165	
Axial Compliance:	0.67 in.	17 mm
Rotation:	24º	24º
Angular:	12º	12º
Weight:	12.8 lbs.	5.8 Kg

See Page 7.104





Specifications	AU-60	
Maximum Payload	4.0 lbs.	1.8 Kg
Rotational Compliance (X and Y axis)	12°	12°
Rotational Compliance (Z axis)	45°	45°
Axial Compliance (Z axis)	0.28 in.	7 mm
Weight	0.99 lbs.	0.45 Kg
Pressure Range (locked cylinder)	30-145 psi	2-10 bar
Cylinder bore	1.77 in.	45 mm
Displacement	0.06 in.^{3}	1 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	±0.002 in.	±0.05 mm
Valve required to actuate	3-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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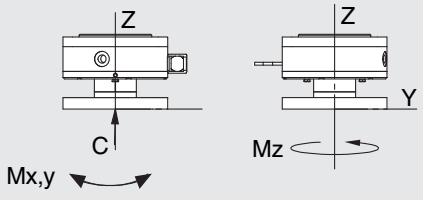


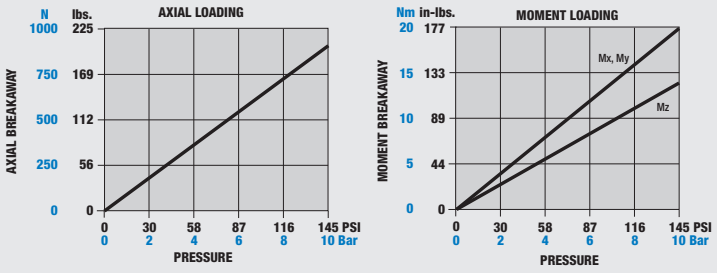
Loading Capacity at 100 psi 7 bar	Imperial	Metric
Maximum Breakaway Compressive **C**	139 lbs.	620 N
Maximum Breakaway Moment **Mx**	124 in.-lbs.	14 Nm
Maximum Breakaway Moment **My**	89 in.-lbs.	10 Nm
Maximum Breakaway Moment **Mz**	124 in.-lbs.	14 Nm

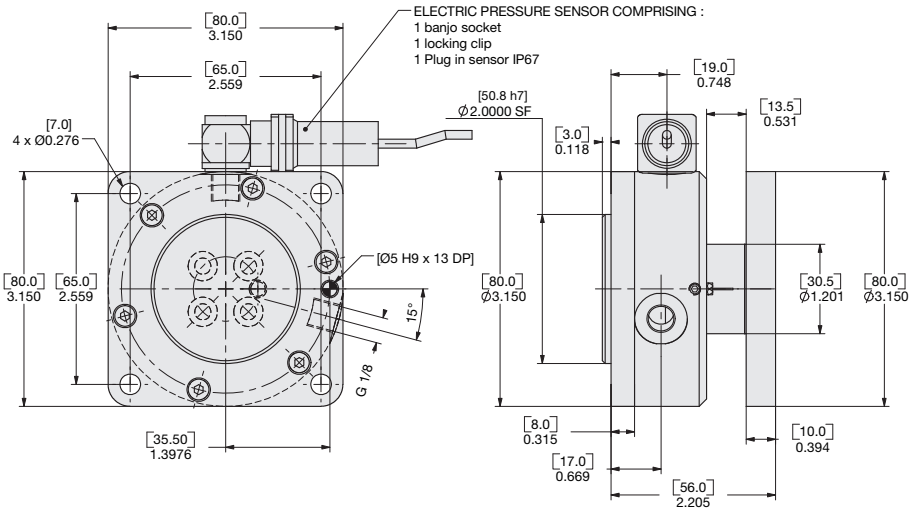
How to Order: (Order Accessories separately from Basic Model)

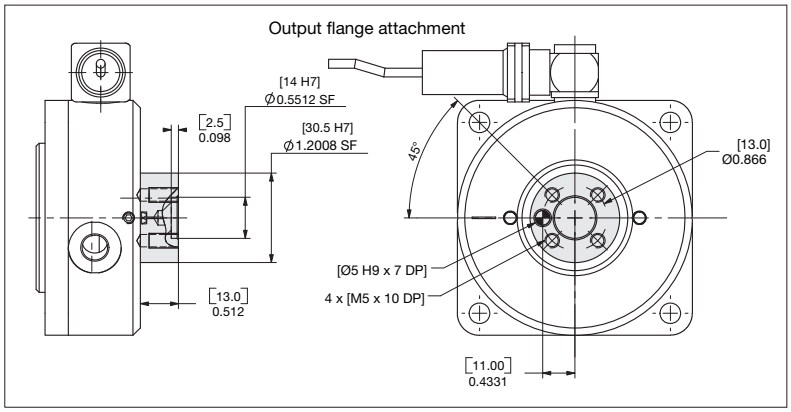
BASIC MODEL

AU-60

Maximum Overload







Specifications	AU-80	
Maximum Payload	10.0 lbs.	4.5 Kg
Rotational Compliance (X and Y axis)	12°	12°
Rotational Compliance (Z axis)	24°	24°
Axial Compliance (Z axis)	0.334 in.	8.5 mm
Weight	1.5 lbs.	0.68 Kg
Pressure Range (locked cylinder)	30-145 psi	2-10 bar
Cylinder bore	2.4 in.	61 mm
Displacement	0.99 in.^{3}	16.3 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	±0.0025 in.	±0.06 mm
Valve required to actuate	3-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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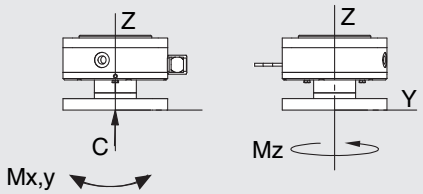


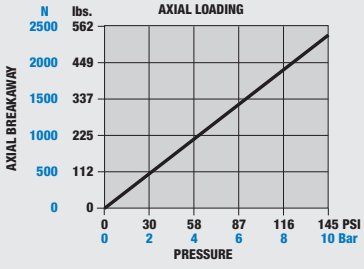
Loading Capacity at 100 psi 7 bar	Imperial	Metric
Maximum Breakaway Compressive **C**	372 lbs.	1655 N
Maximum Breakaway Moment **Mx**	195 in.-lbs.	22 Nm
Maximum Breakaway Moment **My**	221 in.-lbs.	25 Nm
Maximum Breakaway Moment **Mz**	195 in.-lbs.	22 Nm

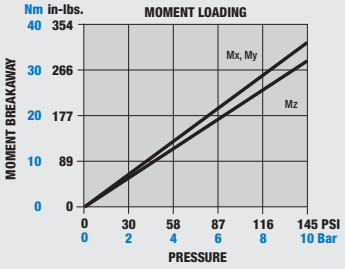
How to Order: (Order Accessories separately from Basic Model)

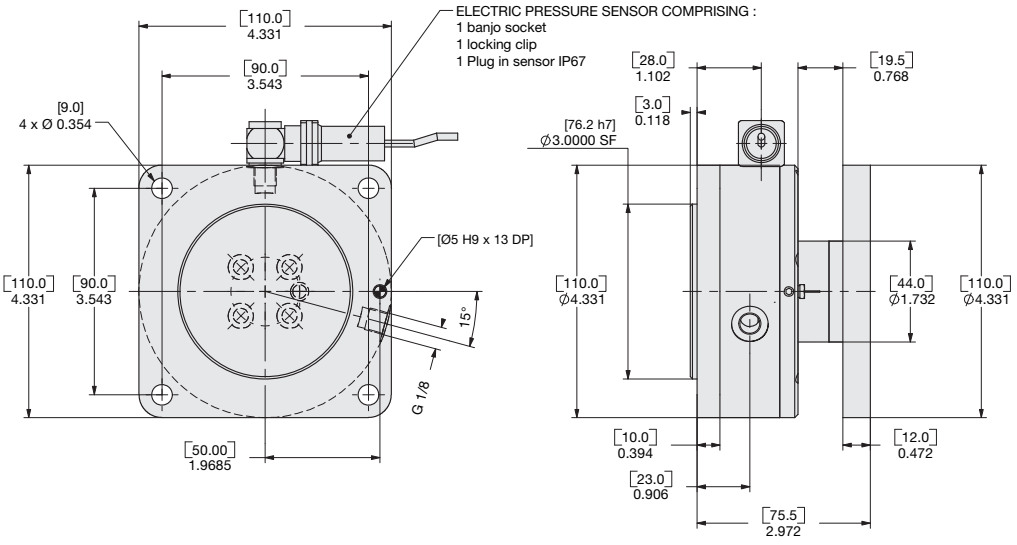
BASIC MODEL

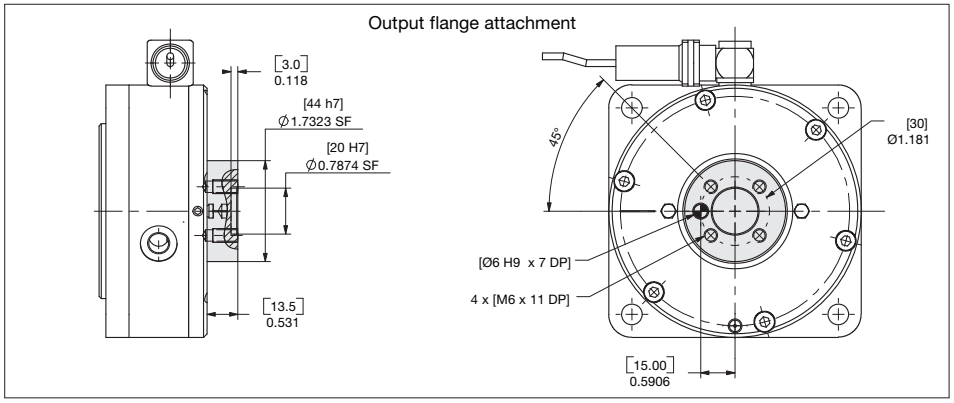
AU-80

Maximum Overload







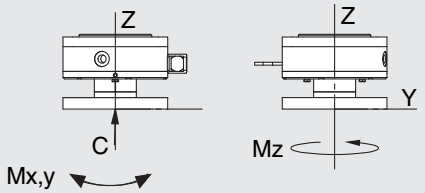


Specifications	AU-110	
Maximum Payload	18.8 lbs.	8.5 Kg
Rotational Compliance (X and Y axis)	12°	12°
Rotational Compliance (Z axis)	31°	31°
Axial Compliance (Z axis)	0.531 in.	13.5 mm
Weight	4.6 lbs.	2.1 Kg
Pressure Range (locked cylinder)	30-145 psi	2-10 bar
Cylinder bore	3.38 in.	86 mm
Displacement	2.22 $in.^3$	36.5 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	±0.003 in.	±0.08 mm
Valve required to actuate	3-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information



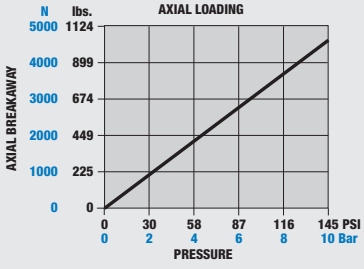
Loading Capacity at 100 psi 7 bar	Imperial	Metric
Maximum Breakaway Compressive **C**	712 lbs.	3170 N
Maximum Breakaway Moment **Mx**	522 in.-lbs	59 Nm
Maximum Breakaway Moment **My**	345 in.-lbs	39 Nm
Maximum Breakaway Moment **Mz**	522 in.-lbs	59 Nm

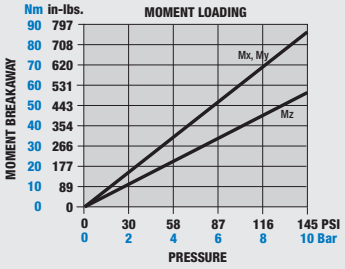
How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL

AU-110

Maximum Overload





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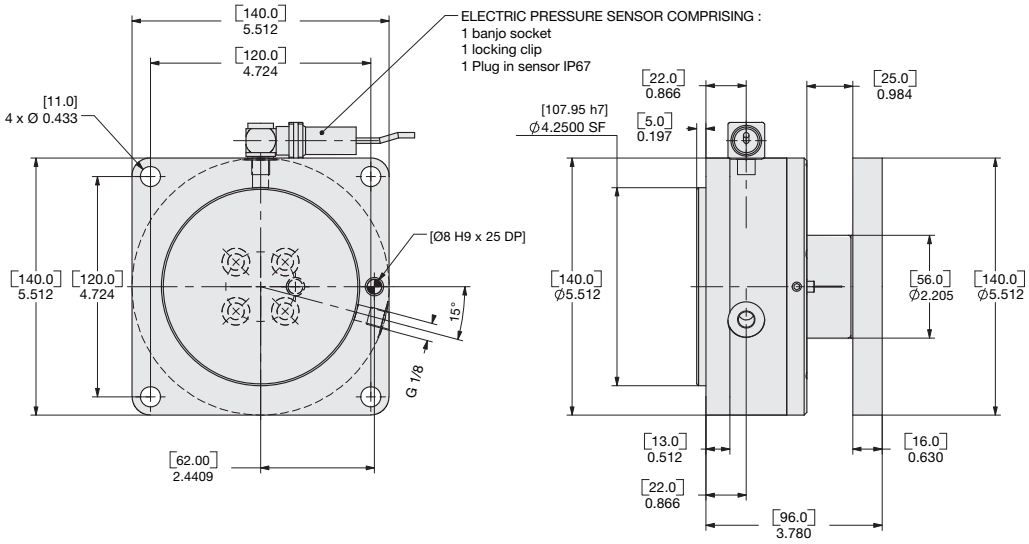

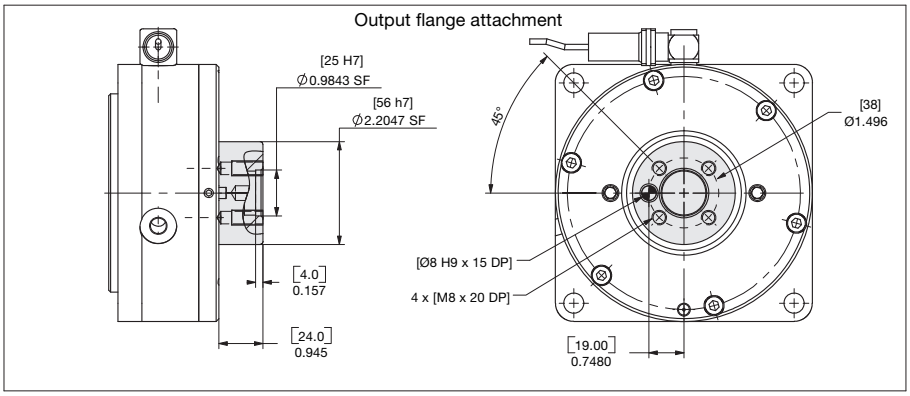

Specifications	AU-140	
Maximum Payload	38.6 lbs.	17.5 Kg
Rotational Compliance (X and Y axis)	12°	12°
Rotational Compliance (Z axis)	45°	45°
Axial Compliance (Z axis)	0.63 in.	16 mm
Weight	8.8 lbs.	4.0 Kg
Pressure Range (locked cylinder)	30-145 psi	2-10 bar
Cylinder bore	4.25 in.	108 mm
Displacement	3.31 in.^{3}	54.3 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	±0.004 in.	±0.1 mm
Valve required to actuate	3-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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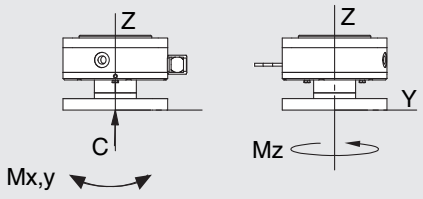


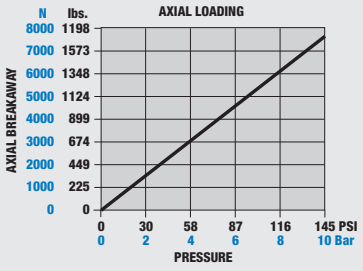
Loading Capacity at 100 psi 7 bar	Imperial	Metric
Maximum Breakaway Compressive **C**	1178 lbs.	5240 N
Maximum Breakaway Moment **Mx**	1584 in.-lbs	179 Nm
Maximum Breakaway Moment **My**	1221 in.-lbs	138 Nm
Maximum Breakaway Moment **Mz**	1584 in.-lbs	179 Nm

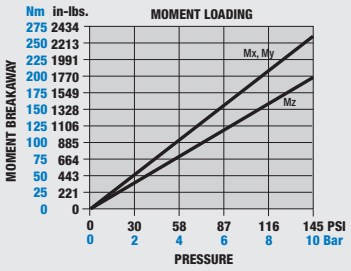
How to Order: (Order Accessories separately from Basic Model)

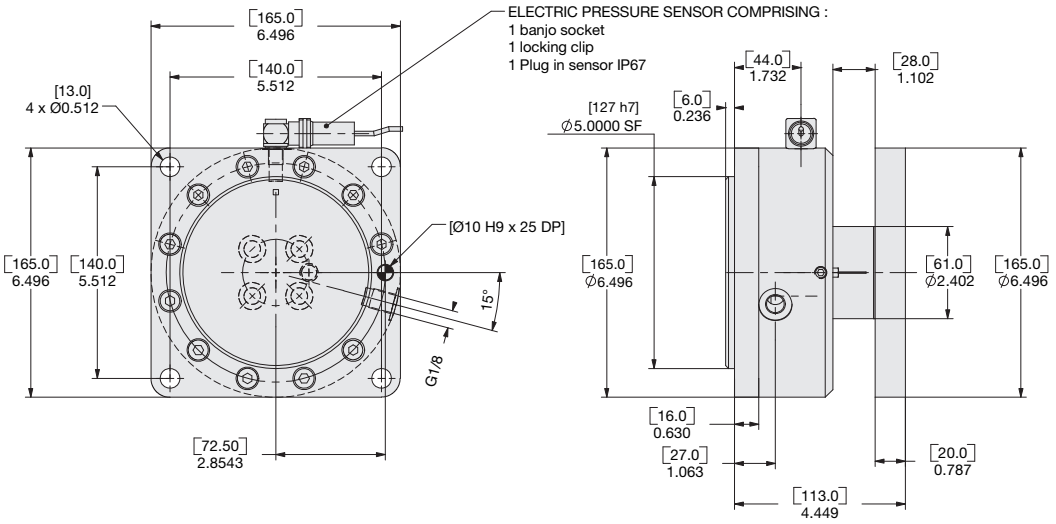
BASIC MODEL

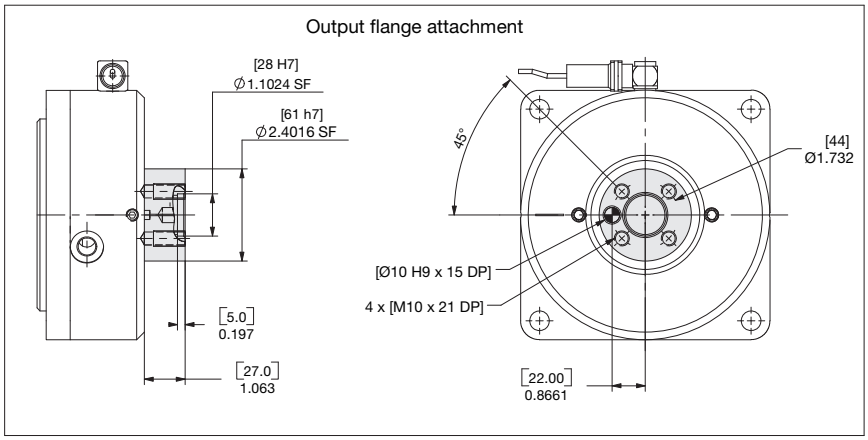
AU-140

Maximum Overload









Specifications	AU-165	
Maximum Payload	48.5 lbs.	22.0 Kg
Rotational Compliance (X and Y axis)	12°	12°
Rotational Compliance (Z axis)	24°	24°
Axial Compliance (Z axis)	0.67 in.	17 mm
Weight	12.7 lbs.	5.8 Kg
Pressure Range (locked cylinder)	30-145 psi	2-10 bar
Cylinder bore	4.76 in.	121 mm
Displacement	3.94 in.3	64.6 cm3
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	±0.005 in.	±0.12 mm
Valve required to actuate	3-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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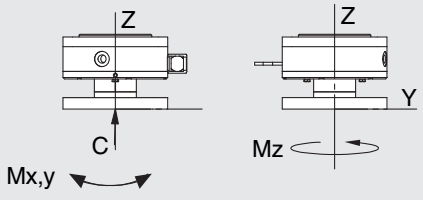


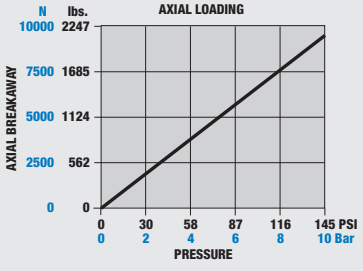
Loading Capacity at 100 psi 7 bar	Imperial	Metric
Maximum Breakaway Compressive **C**	1472 lbs.	6550 N
Maximum Breakaway Moment **Mx**	1956 in.-lbs	221 Nm
Maximum Breakaway Moment **My**	1584 in.-lbs	179 Nm
Maximum Breakaway Moment **Mz**	1956 in.-lbs	221 Nm

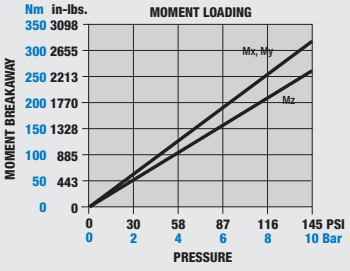
How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL

AU-165

Maximum Overload





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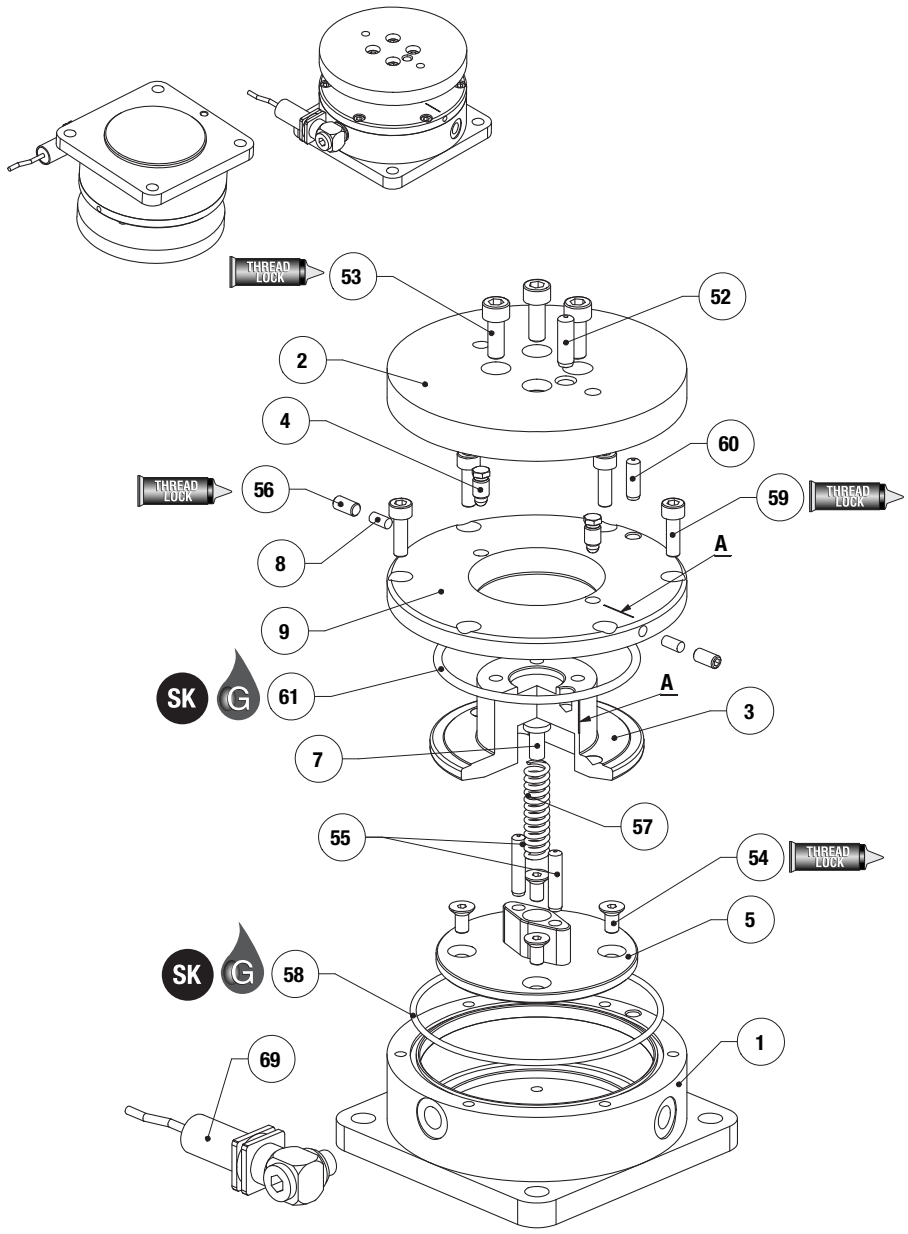


Item	Qty	Name
1	1	Body
2	1	Blank Plate
3	1	Output Flange
4	2	Spherical pin
5	1	Stop
7	1	Spring cap
8	2	Cylindrical spacer
9	1	Cap
52	1	Pin, Output flange
53	4	SHC screw, Flange
54	4	Hexagon CSKH screw, Stop
55	2	Pin, Stop
56	2	SS screw, Cylindrical pin
57	1	Spring
58	1	O-ring, Cap
59	6	SHC screw, Cap
60	1	Pin, Cap
61	1	O-ring, output flange
69	1	Electric pressure sensor

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedures

1) Locate the stop (#5) using the two pins (#55) into the body (#1)
2) Fasten the stop (#5) with (#54) screws with thread locker
3) Install the spring (#57) into the stop hole
4) Insert the spring cap (#7) into the spring (#57)
5) Insert the O-Ring (#58) into the top groove of the body (#1)
6) Screw the spherical pin (#4) into the cap (#9)
7) Insert the cylindrical spacer (#8) into the lateral holes of the cap (#9)
8) Fasten the SS screws (#56) into the lateral tapped holes of the cap (#9)
9) Insert the O-Ring (#61) into the groove of the cap (#9)
10) Insert the output flange (#3) into the cap (#9) lining up the engraved signs "A"
11) Insert this subassembly into the body (#1) and locate it using (#60) pin
12) Fasten the cap (#9) with (#59) SH screws with thread locker
13) Locate the blank plate (#2) onto the output flange (#3) using the dowel pin (#52)
14) Fasten the blank plate (#2) with (#53) SH screws with thread locker
15) Screw the electric pressure sensor (#69) in the body (#1)

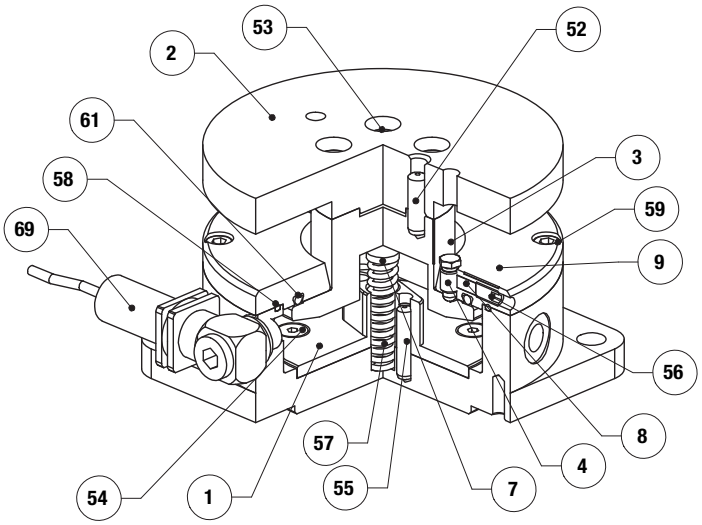
Adjustment Procedures

For an easier adjustment, the blank plate (#2) can be disassembled. It is also advised to supply the module with two bar air pressure.

1) Unscrew the SS screws (#56) to release the cylindrical spacer (#8)
2) Unscrew the spherical pin (#4) to release the contact with the conical seats of the output flange (#3).
3) Line up the engraved "A" sign of the body (#1) and the output flange (#3)
4) Screw, simultaneously, by successive quarter of turn, the spherical pin (#4) till getting a contact into the conical seats of the output flange (#3). Repeat this operation until getting a minimal angular freedom.
5) Fasten the SS screws (#56) into the lateral tapped holes of the cap (#9).

SK — Seal Kit Items
THREAD LOCK — Thread Locker
KRYTOX — Krytox™ Lubricant
O — Lightweight Machine Oil
G — Teflon® Based Grease
GLUE — Super Bonder
Third Angle Projection

AU Series Assembled View



Item	Qty	Name
1	1	Body
2	1	Blank Plate
3	1	Output Flange
4	2	Spherical pin
5	1	Stop
7	1	Spring cap
8	2	Cylindrical spacer
9	1	Cap
52	1	Pin, Output flange
53	4	SHC screw, Flange
54	4	Hexagon CSKH screw, Stop
55	2	Pin, Stop
56	2	SS screw, Cylindrical pin
57	1	Spring
58	1	O-ring, Cap
59	6	SHC screw, Cap
60	1	Pin, Cap
61	1	O-ring, output flange
69	1	Electric pressure sensor

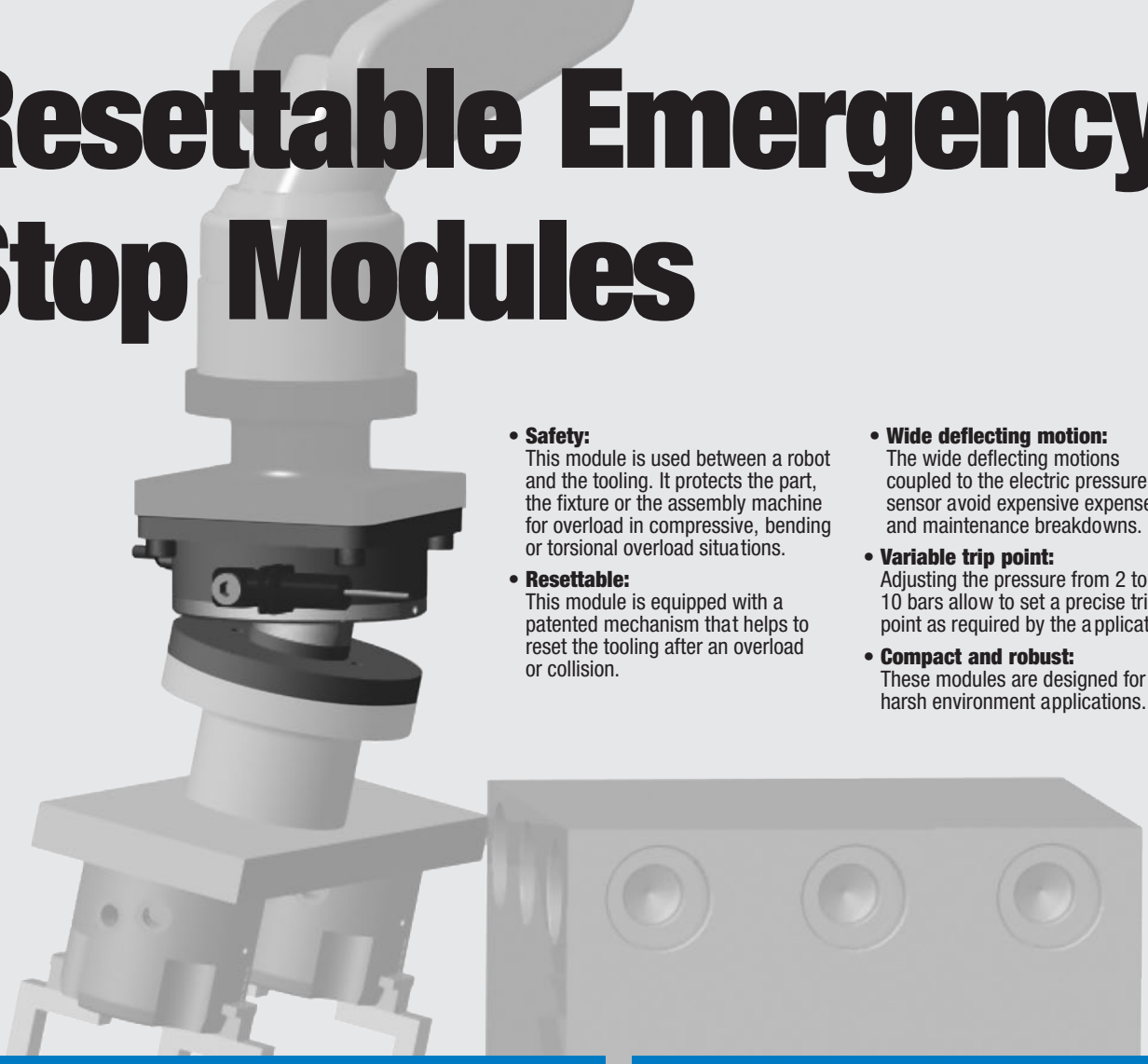
NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon® Based Grease
GLUE Super Bonder
Third Angle Projection

DESIGN NOTES

QUALITY PRECISION DURABILITY

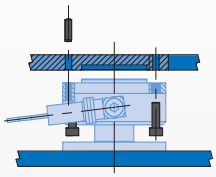
Resettable Emergency Stop Modules



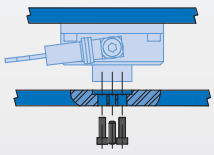
- **Safety:**
  This module is used between a robot and the tooling. It protects the part, the fixture or the assembly machine for overload in compressive, bending or torsional overload situations.
- **Resettable:**
  This module is equipped with a patented mechanism that helps to reset the tooling after an overload or collision.
- **Wide deflecting motion:**
  The wide deflecting motions coupled to the electric pressure sensor avoid expensive expenses and maintenance breakdowns.
- **Variable trip point:**
  Adjusting the pressure from 2 to 10 bars allow to set a precise trip point as required by the application.
- **Compact and robust:**
  These modules are designed for harsh environment applications.

Mounting Information:

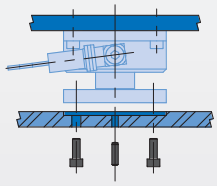
Modules can be mounted & operated in any orientation



The module is located using pilot boss and a dowel pin and assembled with 4 thru body screws



The tooling is located using 2 dowel pins and assembled with 4 screws



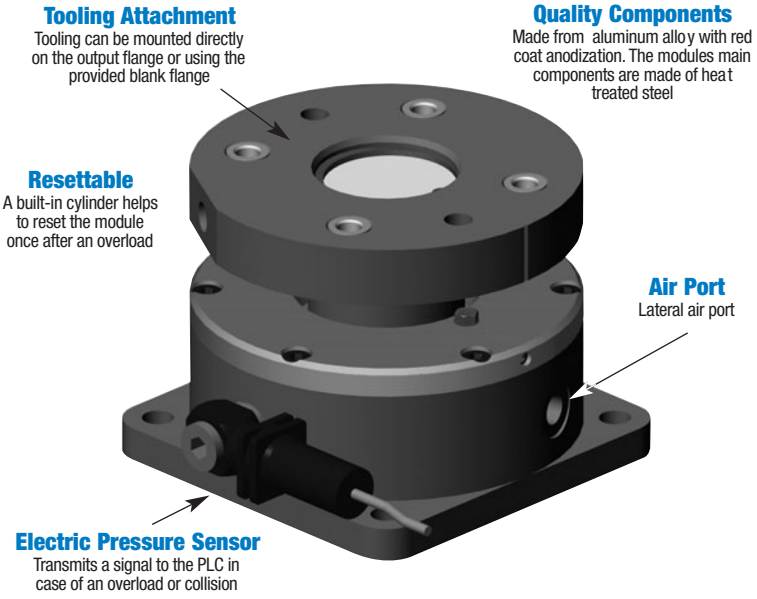
Using the blank plate allows the customer to locate and assemble its tooling to their convenience

Technical Specifications:

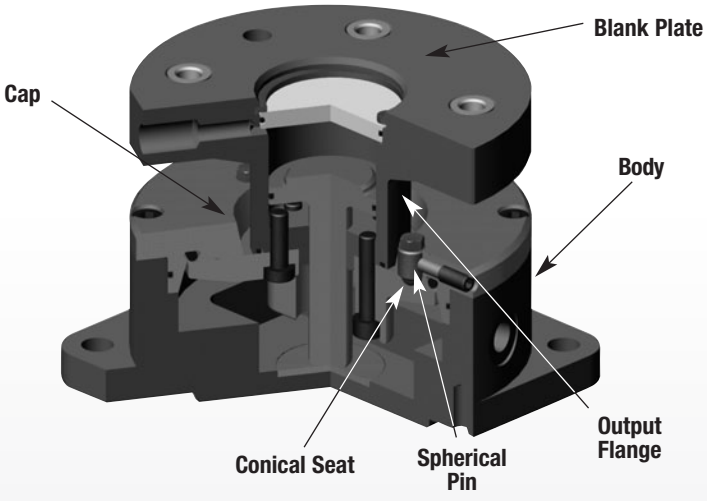
Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	30-145 psi	2-10 bar
Cylinder Type	Non-Conventional	
Dynamic seals	Internally lubricated Viton® seals	
Valve Required to Operate	0-145 PSI regulator	
Air Quality Requirements		
Air Filtration	40 Micron or Better	
Air Lubrication	Not Necessary*	
Air Humidity	Low Moisture Content (dry)	
Temperature Operating Range	-30°~180° F	-35°~80° C
Maintenance Specifications**		
Expected Life		
Normal Application	5 million cycles	
w/ Preventative Maintenance	10+ million cycles	
Field Repairable	Yes	
Seal Repair Kits Available	Yes	

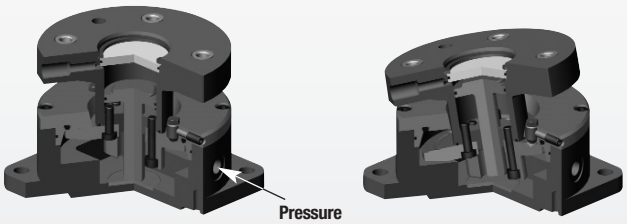
*Addition of lubrication will greatly increase service life
**See Maintenance Section

Product Features



Operating Principle





- The conical seat in the output flange and the spherical pin are used to place the module in the home position.
- The pressure inside the chamber applies an effort on the output flange to keep it in the home position.
- When an outside force or moment applied to the output flange is higher then the preset force, the conical seat moves from the spherical pin generating an air leakage.
- The air leakage causes a pressure fall down in the module chamber which is detected by the sensor.
- The module can be reset using the piston placed into the cylinder.

Style- Emergency Stop Modules

Size-110

Style:	AU-110R	
Axial Compliance:	0.531 in.	13.5 mm
Rotation:	45°	45°
Angular:	12°	12°
Weight:	4.9 lbs.	2.25 Kg

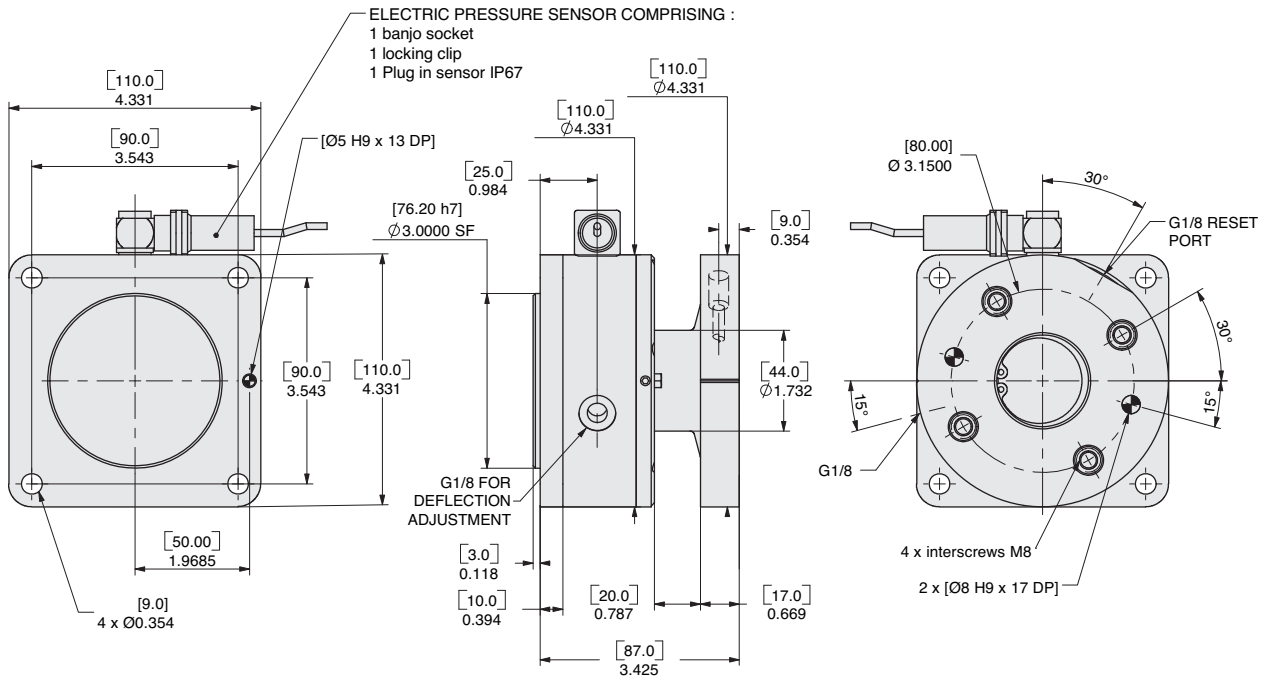
See Page 7.110

Style- Emergency Stop Modules

Size-140

Style:	AU-140R	
Axial Compliance:	0.689 in.	17.5 mm
Rotation:	46.8°	46.8°
Angular:	12°	12°
Weight:	10.4 lbs.	4.75 Kg

See Page 7.111

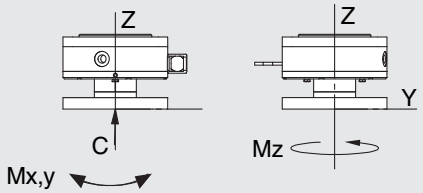


Specifications	AU-110R	
Maximum Payload	18.8 lbs.	8.5 Kg
Rotational Compliance (X and Y axis)	12°	12°
Rotational Compliance (Z axis)	45°	45°
Axial Compliance (Z axis)	0.531 in.	13.5 mm
Weight	4.96 lbs.	2.25 Kg
Pressure Range (locked cylinder)	30-145 psi	2-10 bar
Cylinder bore	3.38 in.	86 mm
Displacement	4.27 $in.^3$	70 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	±0.003 in.	±0.08 mm
Valve required to actuate	3-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	[0.] = [± .25] [0.0] = [± .13] [0.00] = [± .013]

Loading Information



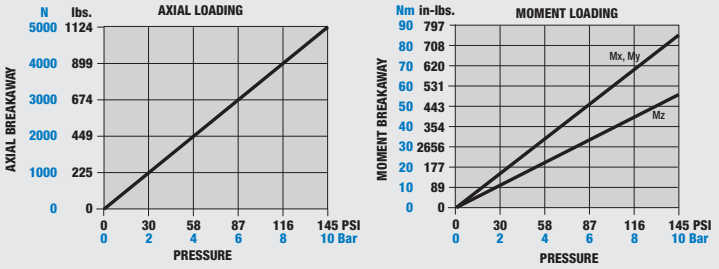
Loading Capacity at 100 psi [7 bar]	Imperial	Metric
Maximum Breakaway Compressive **C**	773 lbs.	3440 N
Maximum Breakaway Moment **Mx**	522 in.-lbs.	59 Nm
Maximum Breakaway Moment **My**	336 in.-lbs.	38 Nm
Maximum Breakaway Moment **Mz**	522 in.-lbs.	59 Nm

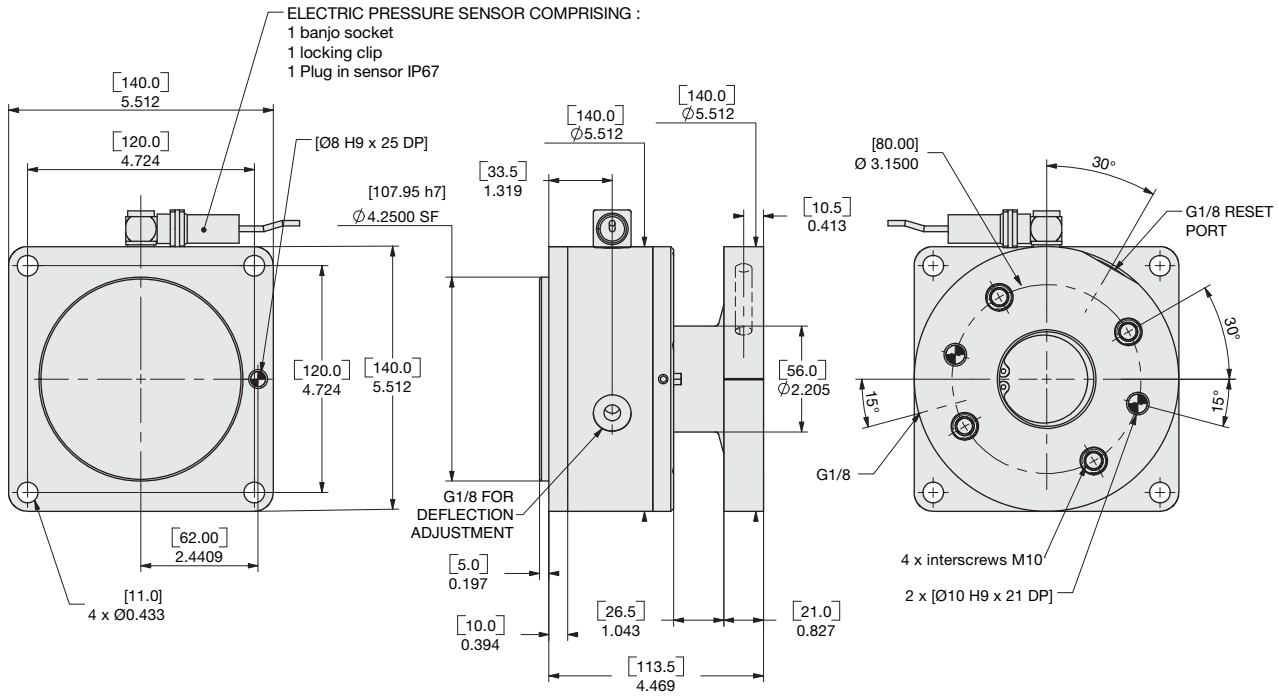
How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL

AU-110R

Maximum Overload



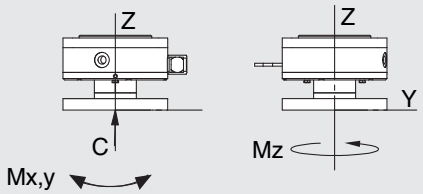


Specifications	AU-140R	
Maximum Payload	38.6 lbs.	17.5 Kg
Rotational Compliance (X and Y axis)	12°	12°
Rotational Compliance (Z axis)	45°	46.8°
Axial Compliance (Z axis)	0.689 in.	17.5 mm
Weight	10.47 lbs.	4.75 Kg
Pressure Range (locked cylinder)	30-145 psi	2-10 bar
Cylinder bore	4.25 in.	108 mm
Displacement	9.76 in.^{3}	160 cm^3
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	±0.004 in.	±0.1 mm
Valve required to actuate	3-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information



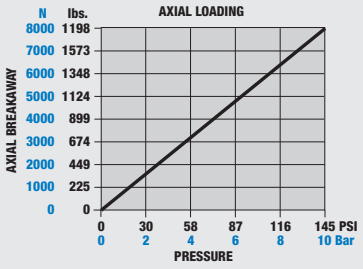
Loading Capacity at 100 psi [7 bar]	Imperial	Metric
Maximum Breakaway Compressive **C**	1238 lbs.	5510 N
Maximum Breakaway Moment **Mx**	1549 in.-lbs.	175 Nm
Maximum Breakaway Moment **My**	1195 in.-lbs.	135 Nm
Maximum Breakaway Moment **Mz**	1549 in.-lbs.	175 Nm

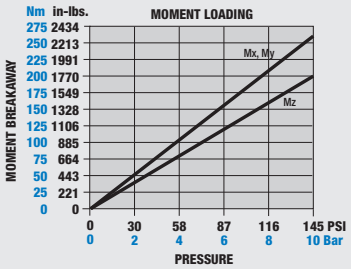
How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL

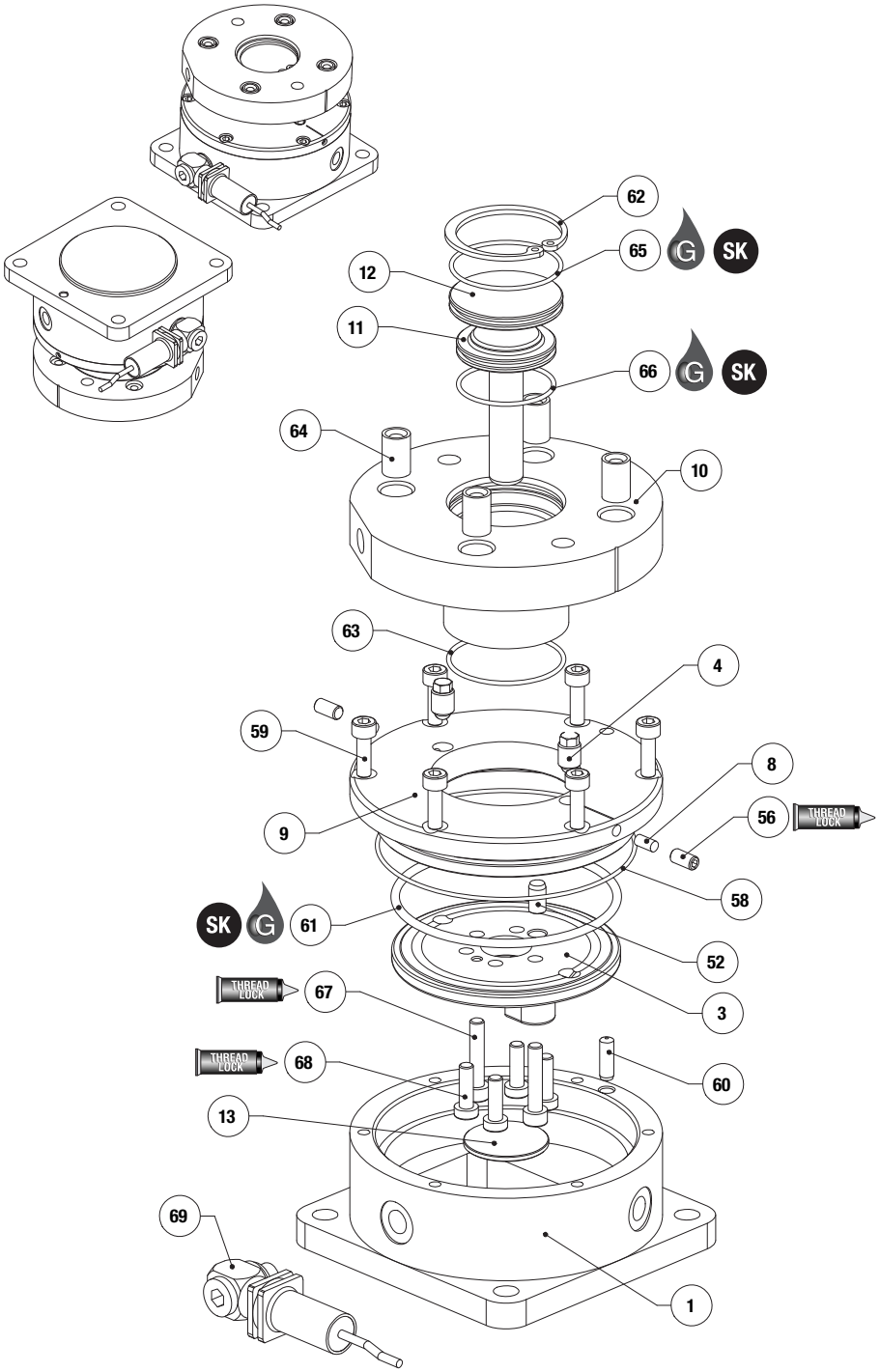
AU-140R

Maximum Overload





AUR Series Exploded View



Item	Qty	Name
1	1	Body
3	1	Output flange
4	2	Spherical pin
8	2	Cylindrical spacer
9	1	Cap
10	1	Cylinder
11	1	Piston
12	1	Cap
13	1	Stop ring
52	1	Pin, output flange
56	2	SS screw, Cylindrical pin
58	1	O-ring, cap
59	6	SHC screw, Cap
60	1	Pin, Body
61	1	O-ring, Cap
62	1	Retaining ring, cap
63	1	O-ring, Cylinder
64	4	Screw crimping bush, Cylinder
65	1	O-ring, Cap
66	1	O-ring, Piston
67	2	SHC screw, Output flange
68	4	LHC screw, Cylinder
69	1	Electric pressure sensor

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Assembly Procedures

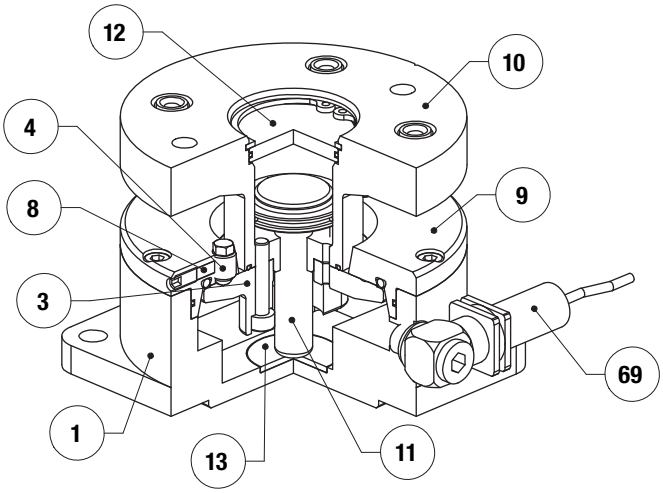
1) Assemble the stop ring (#13) into the body counterbore hole (#1)
2) Screw the spherical pin (#4) into the cap (#9)
3) Insert the cylindrical spacer (#8) into the lateral holes of the cap (#9)
4) Fasten the SS screws (#56) into the lateral tapped holes of the cap (#9)
5) Insert the O-Ring (#58) into the outside groove of the cap (#9)
6) Insert the O-Ring (#61) into the inside groove of the cap (#9)
7) Mount the Screw crimping bush (#64) into the cylinder (#10)
8) Insert the O-Ring (#63) into the groove of the cylinder (#10)
9) Insert the pin (#52) into the cylinder (#10)
10) Fit the cap (#9) between the cylinder (#10) and the output flange (#3) and fasten the cylinder (#10) and the output flange (#3) using the SHC screws (#67) and (#68) with thread locker
11) Insert the pin (#60) into the body (#1)
12) Insert the subassembly built step 10 into the body (#1). The engraved signs of the body and the cap have to be aligned
13) Fasten the cap (#9) with (#59) SHC screws with thread locker
14) Insert the O-Ring (#66) onto the piston (#11)
15) Place the piston (#11) into the cylinder (#10)
16) Insert the O-Ring (#65) onto the cap (#12)
17) Assemble the cap (#12) into the cylinder(#10) using the retaining ring (#62)

Adjustment Procedures

For an easier adjustment, the blank plate (#2) can be disassembled. It is also advised to supply the module with two bar air pressure.

1) Unscrew the SS screws (#56) to release the cylindrical spacer (#8)
2) Unscrew the spherical pin (#4) to release the contact with the conical seats of the output flange (#3).
3) Line up the engraved “A” sign of the body (#1) and the output flange (#3)
4) Screw, simultaneously, by successive quarter of turn, the spherical pin (#4) till getting a contact into the conical seats of the output flange (#3). Repeat this operation until getting a minimal angular freedom.
5) Fasten the SS screws (#56) into the lateral tapped holes of the cap (#9).

SK — Seal Kit Items
THREAD LOCK — Thread Locker
KRYTOX — Krytox™ Lubricant
O — Lightweight Machine Oil
G — Teflon® Based Grease
GLUE — Super Bonder
Third Angle Projection



Item	Qty	Name
1	1	Body
3	1	Output flange
4	2	Spherical pin
8	2	Cylindrical spacer
9	1	Cap
10	1	Cylinder
11	1	Piston
12	1	Cap
13	1	Stop ring
52	1	Pin, output flange
56	2	SS screw, Cylindrical pin
58	1	O-ring, cap
59	6	SHC screw, Cap
60	1	Pin, Body
61	1	O-ring, Cap
62	1	Retaining ring, cap
63	1	O-ring, Cylinder
64	4	Screw crimping bush, Cylinder
65	1	O-ring, Cap
66	1	O-ring, Piston
67	2	SHC screw, Output flange
68	4	LHC screw, Cylinder
69	1	Electric pressure sensor

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

SK Seal Kit Items

THREAD LOCK Thread Locker

KRYTOX Krytox™ Lubricant

O Lightweight Machine Oil

G Teflon® Based Grease

GLUE Super Bonder

Third Angle Projection

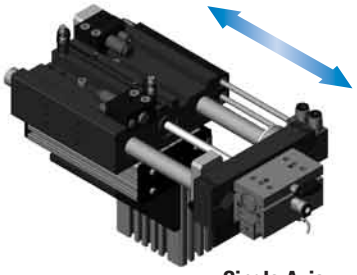
DESIGN NOTES

Value-Added Services

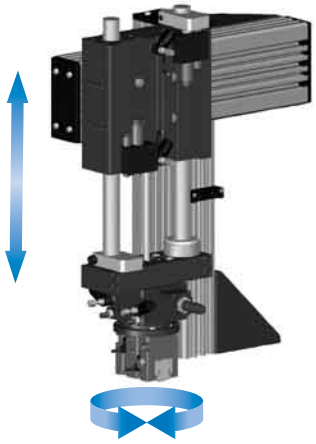
- **Complete Modular Automation Systems**
- **Specials - Custom Products**
- **Robosizer - World-Class Product Sizing Software**

Unlimited Modular Automation

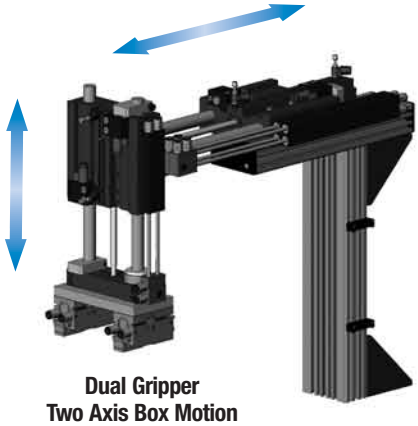
Combination of Electric and Pneumatic Products



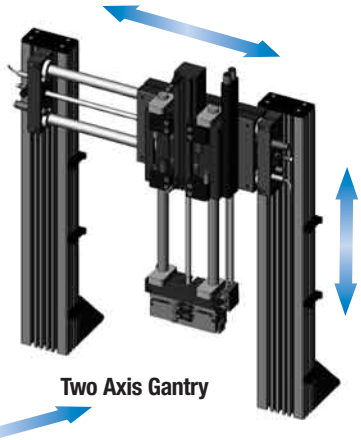
Single Axis
Horizontal Motion



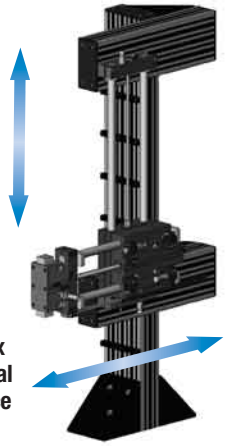
Single Axis Vertical Motion
with "Z" Axis Rotary



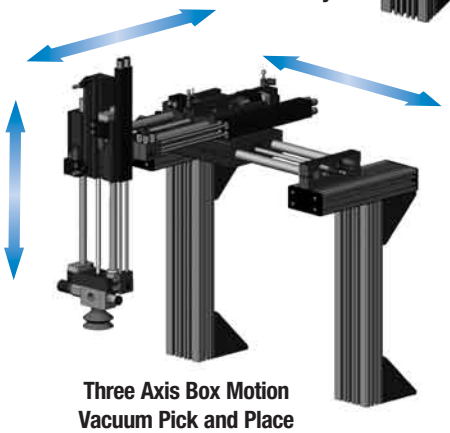
Dual Gripper
Two Axis Box Motion



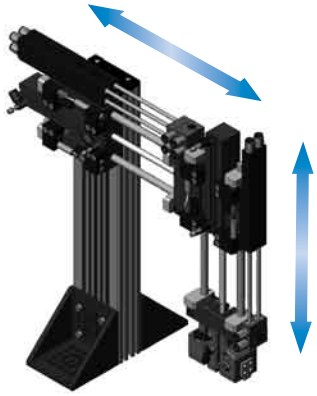
Two Axis Gantry



Two Axis Box
Motion Vertical
Pick and Place



Three Axis Box Motion
Vacuum Pick and Place



Slim Profile
Two Axis Box Motion
Pick and Place

Systems as easy as 1-2-3-4!

Engineered to meet your specific application needs

Unique Advantages	Your Lean Benefits!
Easy to Design	*Reduce and Simplify System Design Time*
DIRECTCONNECT™ Technology	*Improve Repeatability and Accuracy*
Easy to Order	*Simple Steps to Walk You Through Your Finished Design*
Comprehensive Digital Documentation	*Reference at Your Fingertips*
Superior Customer Support	*No Hang-ups! Speak One-on-One with an Engineer for Immediate Answers*
Infinite Configurations	*Electric and Pneumatic Product Combinations Offer an Unlimited Number of Motions*
On-Time Delivery	*No Delays to Your Project*
Work with Experts	*FREE! Use Us as an Expert Consultant to Your Team!*

Easy to Design... Easy to Order!

1 Configure Your System...

- Call us at 1.888.DESTACO to speak directly with a tech support engineer
- Review a variety of modular automation options and accessories to best suit your application needs
- Complete an application data sheet

2 Place Your Order...

- Submit your application datasheet via e-mail to cs-automation@destaco.com or fax to 203.452.7416
- A review of your data sheet will occur within 24 hours of receipt
- A firm price and e-drawing will be generated for your review and approval

3 Delivery and Support...

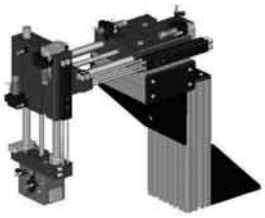
- Your system order will be shipped per your request

4 Complete Electronic Documentation Package...

- Included with your order will be a complete electronic documentation package with contents noted in this brochure
- **Begin experiencing enhanced productivity improvement and cost-reduction resulting from your new Robohand Modular Automation System!**

An Industry First!

Receive a complete electronic documentation package with every Modular Automation System purchased.

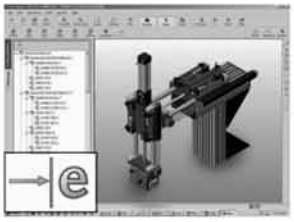


3D CAD Models

- Available in virtually any CAD format

Applications Worksheet

- All information gathered in a controlled format

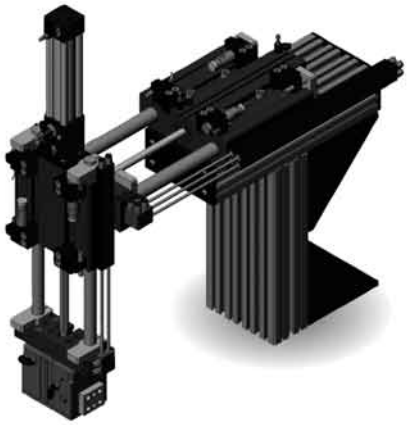


e-Drawings

- 3D model format with built-in viewer
- Zoom, rotate, and pan exploded views

Catalog Datasheets

- Datasheets for all products in the system
- Specifications, dimensions, and maintenance information

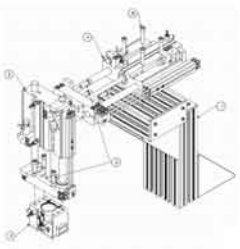


Formal System Quote

- Pricing and shipping delivery information

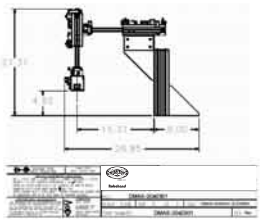
Bill of Materials

- Bill of Materials with kit order numbers



Exploded System View

- Exploded system view with balloon numbers



2D Dimensional Drawings

- View 2D line drawings
- Basic overall dimensions of your system

Specials

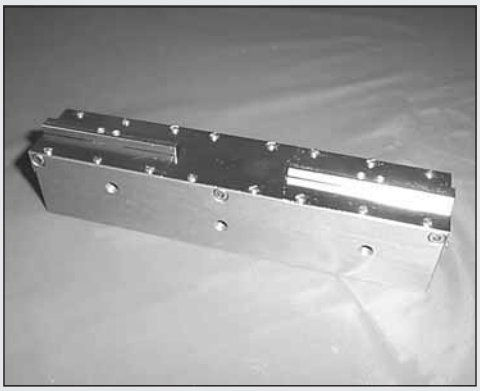
From harsh environments to high compressive loads, Robohand, a DE-STA-CO product brand, will create custom solutions for your application needs.

Have you ever been faced with an unusual application and felt at a loss for a product solution? Call Robohand. As a leader in the design and manufacture of robotic tooling and modular automation components, Robohand produces sophisticated grippers, rotary actuators, slides, lift tables, tool changers, thrusters and feed escapements. If you cannot find a standard product that is exactly what you are looking for, Robohand can create unique custom product modifications to meet your application challenge.

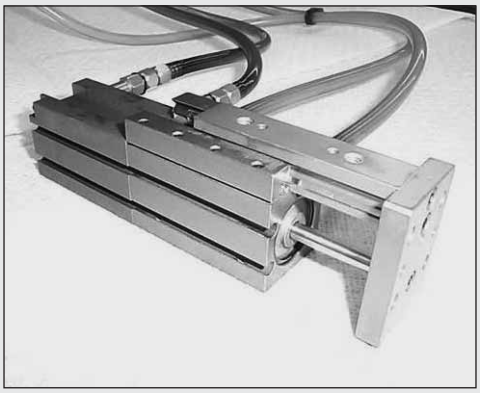
Lean Results:

- Best solutions to difficult engineering challenges
- Does not void Robohand warranty
- Will provide part numbers & documents for future orders
- Speak directly to a competent Engineer
- Support via phone, internet, or in the field

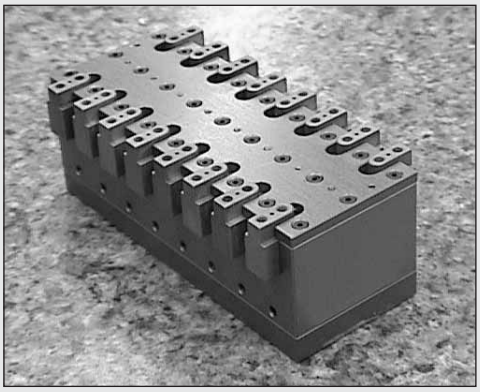
The next time you find yourself at a loss for an application solution, remember that Robohand is known for quality technical support that delivers the answers you need.



Offers more stroke than our standard gripper

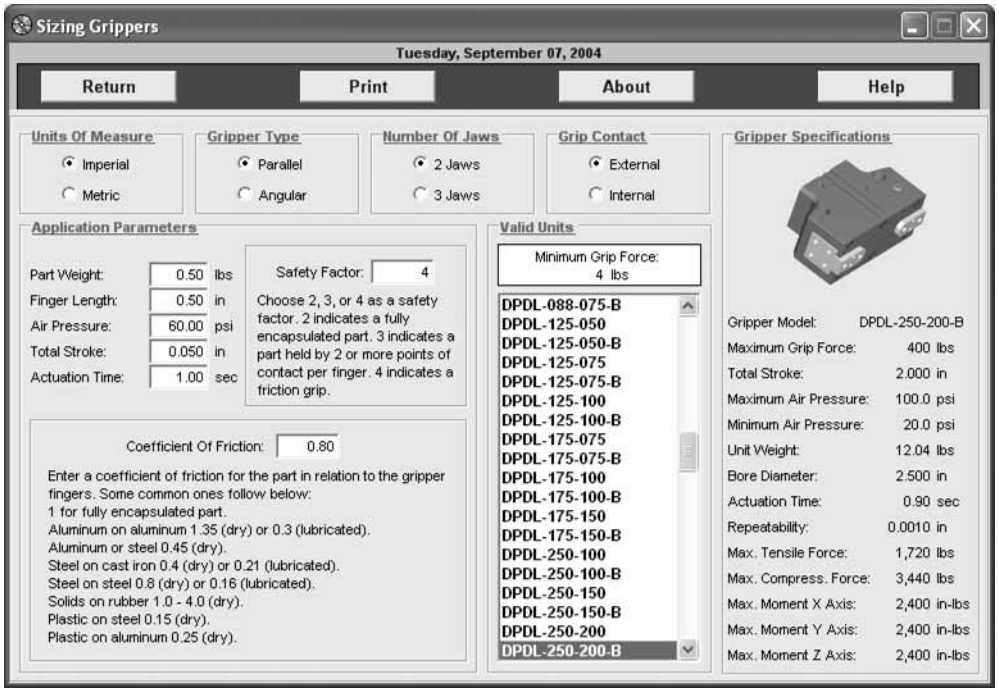


Linear slide offering double the force in the same profile



Internally sealed, stainless steel submersible gripper

World-Class Robosizer Product Sizing Software



Robosizer is a web-based product sizing application that reduces design time by narrowing down the search for products based upon parameters provided by the user.

Lean Results:

- Work on-line without downloading software
- Reduces design time
- Results in cost savings
- Easy-to-use graphical interface
- Narrows down search for products based on inputs
- Non-compliant parameters are highlighted

Index

Introduction
I New Products
III Table of Contents
IV Terms and Conditions
V Terms and Conditions
VI Applications Form

Parallel Grippers
1.3 Product Overview
1.4 Product Selector

RPE SERIES
1.6 RPE Family Page
1.8 RPE-100, -101
1.10 RPE Maintenance

RDH/DDH SERIES
1.12 RDH/DDH Family Page
1.14 RDH/DDH-1M
1.16 RDH/DDH-2M
1.18 RDH/DDH-3M
1.20 RDH/DDH-4M
1.22 RDH/DDH-5M
1.24 RDH-6M
1.26 RDH-7M
1.28 RDH-8M
1.30 RH/DDH Maintenance

DPP SERIES
1.32 DPP Family Page
1.34 DPP-10M-06
1.36 DPP-10M-12
1.38 DPP-14M-15
1.40 DPP-14M-25
1.42 DPP-20M-25
1.44 DPP-20M-38
1.46 DPP-28M-31
1.48 DPP-28M-50
1.50 DPP Maintenance

RPL SERIES
1.52 RPL Family Page
1.54 RPL-1
1.55 RPL-2
1.56 RPL-3
1.57 RPL-4
1.58 RPL Maintenance

RPLC SERIES
1.60 RPLC Family Page
1.62 RPLC-1
1.63 RPLC-2
1.64 RPLC-3
1.65 RPLC-4
1.66 RPLC Maintenance

RPM SERIES
1.68 RPM Family Page
1.70 RPM-1M
1.71 RPM-2M
1.72 RPM-3M
1.73 RPM Maintenance

RPMC SERIES
1.76 RPMC Family Page
1.78 RPMC-1M
1.79 RPMC-2M
1.80 RPMC-3M
1.81 RPMC Maintenance

DPG SERIES
1.84 DPG Family Page
1.86 DPG-10-1
1.88 DPG-10-2
1.90 DPG-10-3
1.92 DPG-10-4
1.94 DPG Maintenance

DPDS SERIES
1.96 DPDS Family Page
1.98 DPDS-047
1.100 DPDS-056
1.102 DPDS-088
1.104 DPDS-125
1.106 DPDS-175
1.108 DPDS-250
1.110 DPDS Maintenance

DPDL SERIES
1.112 DPDL Family Page
1.114 DPDL-047
1.116 DPDL-056
1.118 DPDL-088
1.120 DPDL-125
1.122 DPDL-175
1.124 DPDL-250
1.126 DPDL Maintenance

DPL SERIES
1.128 DPL Family Page
1.130 DPL-2520
1.131 DPL-2535
1.132 DPL-3230
1.133 DPL-3250
1.134 DPL-4040
1.135 DPL-4070
1.137 DPL Maintenance

RP-5&10 SERIES
1.140 RP-5&10 Family Page
1.142 RP-5
1.143 RP-10
1.144 RP 5&10 Maintenance

RP SERIES
1.146 RP Family Page
1.148 RP-11
1.149 RP-12
1.150 RP-15
1.151 RP-17
1.152 RP-18
1.153 RP-19
1.154 RP Double Wedge Maintenance

RPS SERIES
1.156 RPS Family Page
1.158 RPS-11
1.159 RPS-12
1.160 RPS-15
1.161 RPS-17
1.162 RPS-18
1.163 RPS Maintenance

GC SERIES
1.166 GC Family Page
1.168 GC-25
1.169 GC-45
1.170 GC-65
1.171 GC-85
1.172 GC-105
1.173 GC Maintenance

DPW SERIES
1.176 DPW Family Page
1.178 DPW-250M-1
1.180 DPW-250M-2
1.182 DPW-375M-1
1.184 DPW-375M-2
1.186 DPW-500M-1
1.188 DPW-500M-2
1.190 DPW Maintenance

RPW SERIES
1.194 RPW Family Page
1.196 RPW-625-1
1.197 RPW-625-2
1.198 RPW-750
1.199 RPW Maintenance

RIM SERIES
1.202 RIM Family Page
1.203 X2040901
1.204 X2041234
1.205 X2050204

"B" SERIES
1.206 BPW Series
1.206 BRP Series
1.206 BPG Series

RTH/DTH SERIES
1.208 RTH/DTH Family Page
1.210 RTH/DTH-1M
1.212 RTH/DTH-2M
1.214 RTH/DTH-3M
1.216 RTH/DTH-4M
1.218 RTH/DTH-5M
1.220 RTH-6M
1.222 RTH-7M
1.224 RTH-8M
1.226 RTH/DTH Maintenance

PPC SERIES
1.230 PPC Family Page
1.232 PPC-12
1.233 PPC-12-C
1.234 PPC-25
1.235 PPC-25-C
1.236 PPC-34
1.237 PPC-34-C
1.238 PPC Sensors
1.239 PPC Maintenance

Angular Grippers
2.2 Product Overview
2.3 Product Selector

RUA/DUA SERIES
2.4 RUA/DUA Family Page
2.6 RUA/DUA-62M
2.8 RUA/DUA-82M
2.10 RUA/DUA-112M
2.12 RUA-142M
2.14 RUA-162M
2.16 RUA/DUA Maintenance

RA 5-10 SERIES
2.18 RA-5,6,7,8,&10 Family Page
2.20 RA-5
2.21 RA-6
2.22 RA-7
2.23 RA-8
2.24 RA-5,6,7,8 Maintenance
2.26 RA-10
2.27 RA-10 Maintenance

RA-15-25 SERIES
2.30 RA 15&25 Family Page
2.32 RA-15
2.33 RA-25
2.34 RA 15&25 Maintenance

DCT/CT SERIES
2.36 DCT/CT Family Page
2.38 DCT-12
2.39 DCT-16
2.40 DCT-20
2.41 DCT-25
2.42 CT-32
2.43 CT-40
2.44 CT-50
2.45 DCT/CT Maintenance

DCT-RE/CT-RE SERIES
2.48 DCT-RE/CT-RE Family Page
2.50 DCT-12-RE
2.51 DCT-16-RE
2.52 DCT-20-RE
2.53 DCT-25-RE
2.54 CT-32-RE
2.55 CT-40-RE
2.56 CT-50-RE
2.57 DCT-RE/CT-RE Maintenance

Rotary Motion Actuators
3.1 Product Overview

DRG SERIES
3.2 DRG Family Page
3.4 DRG-075
3.6 DRG-094
3.8 DRG-106
3.10 DRG-131
3.12 DRG Maintenance

DRF SERIES
3.14 DRF Family Page
3.16 DRF-075
3.18 DRF-094
3.20 DRF-106
3.22 DRF-131
3.24 DRF Maintenance

RR SERIES
3.26 RR-18 & 28 Family Page
3.28 RR-18
3.29 RR-28
3.30 RR 18 & 28 Maintenance
3.32 RR-36 & 46 Family Page
3.34 RR-36
3.35 RR-36 Options
3.36 RR-46
3.37 RR-46 Options
3.38 RR-36 & 46 Maintenance
3.40 RR-36 & 46 Opt. Maintenance
3.42 RR-56, 66 & 76 Family Page
3.44 RR-56
3.45 RR-56 Options
3.46 RR-66
3.47 RR-66 Options
3.48 RR-56 & 66 Maintenance
3.50 RR-56 & 66 Opt. Maintenance
3.52 RR-76
3.53 RR-76 Options
3.54 RR-76 Maintenance
3.56 RR-76 Options Maintenance

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Linear Slides
4.1 Product Overview
4.2 Product Selector

DIRECTCONNECT SERIES
4.4 DIRECTCONNECT Overview
4.6 Application Concepts

DLB-B&L SERIES
4.8 DLB-B&L Family Page
4.10 DLB-10-16B
4.12 DLB-20-25B
4.14 DLB-10-16L
4.16 DLB-20-25L
4.18 DLB-B&L Maintenance

DLB-TANRU SERIES
4.20 DLB-TANRU Family Page
4.22 DLB-10-16TA
4.24 DLB-20-25TA
4.26 DLB-10-16NU
4.28 DLB-20-25NRU
4.30 DLB-TANRU Maintenance

DLT-B SERIES
4.32 DLT-B Family Page
4.34 DLT-06-08B
4.36 DLT-10-16B
4.38 DLT-20-25B

DLT-E&L SERIES
4.40 DLT-E&L Family Page
4.42 DLT-06-08E
4.44 DLT-10-16E
4.46 DLT-20-25E
4.48 DLT-06-08L
4.50 DLT-10-16L
4.52 DLT-20-25L
4.54 DLT-B,E,L Maintenance

DLT-TANRU SERIES
4.56 DLT-TANRU Family Page
4.58 DLT-06-08TU
4.60 DLT-10-16TA
4.62 DLT-20-25TA
4.64 DLT-10-16NU
4.66 DLT-20-25NRU
4.68 DLT-TANRU Maintenance

DLM SERIES
4.70 DLM Family Page
4.72 DLM -07M-12
4.74 DLM -07M-25
4.76 DLM -07M-38
4.78 DLM -07M-50
4.80 DLM -09M-25
4.82 DLM -09M-50
4.84 DLM -09M-75
4.86 DLM -09M-100
4.88 DLM -12M-25
4.90 DLM -12M-50
4.92 DLM -12M-75
4.94 DLM -12M-100
4.96 DLM Maintenance

DIRECTCONNECT Mounting Modules
5.2 Product Overview
5.6 DMM-08-01
5.7 DMM-08-02
5.8 DMM-08-03
5.9 DMM-08-04
5.10 DMM-08-05
5.11 DMM-08-06
5.12 DMM-08-07
5.13 DMM-08-08
5.14 DMM-08-09
5.15 DMM-08-10
5.16 DMM-16-01
5.17 DMM-16-02
5.18 DMM-16-03
5.19 DMM-16-04
5.20 DMM-16-05
5.21 DMM-16-06
5.22 DMM-16-07
5.23 DMM-16-08
5.24 DMM-16-09
5.25 DMM-16-10
5.26 DMM-25-01
5.27 DMM-25-02
5.28 DMM-25-03
5.29 DMM-25-04
5.30 DMM-25-05
5.31 DMM-25-06
5.32 DMM-25-07
5.33 DMM-25-08
5.34 DMM-25-09
5.35 DMM-25-10
5.36 Custom Extrusion
5.37 Gusset Kits
5.38 Slot Covers, End Caps, & Nut Plates
5.39 Hose Clamp Kits
5.40 Thruster & Base Slide Mounting Kits

Feed Escapements
6.1 Product Overview

RFE SERIES
6.2 RFE Family Page
6.4 RFE-11
6.5 RFE-12
6.6 RFE-13
6.7 RFE Maintenance

Robotic Tool Changers & Compliance/ Overload Devices
7.1 Product Overview

QC SERIES
7.2 QC Family Page
7.4 QC-30
7.5 TP-30
7.6 QC-60
7.7 TP-60
7.8 QC-60 10-Port
7.9 TP-60 10-Port
7.10 QC-150
7.11 TP-150
7.12 QC Modules
7.18 QC Maintenance
7.20 QC Cross-Reference

RQC SERIES
7.22 RQC Family Page
7.24 RQC-200
7.26 RTP-200
7.28 RQC-400
7.30 RTP-400
7.32 RQC-800
7.34 RTP-800
7.36 RQC-1200
7.38 RTP-1200
7.40 RQC Options/Modules
7.52 RQC Maintenance
7.54 Tool Changer Terminology

RCW SERIES
7.56 RCW Family Page
7.58 RCW-50-3
7.59 RCW-80-3
7.60 RCW-100-4
7.61 RCW-100-6
7.62 RCW-125-6
7.63 RCW-160-6
7.64 RCW-160-8
7.65 RCW-200-12
7.66 RCW-300-12
7.67 RCW Maintenance

KA SERIES
7.68 KA Family Page
7.70 KA-80
7.71 KA-100
7.72 KA-125
7.73 KA-160
7.74 KA-200
7.75 KA-300
7.76 KA Maintenance

CH SERIES
7.78 CH Family Page
7.80 CH-50
7.81 CH-80
7.82 CH-110
7.83 CH-140
7.84 CH-165
7.85 CH Maintenance

ULS SERIES
7.88 ULS Family Page
7.90 ULS-80
7.91 ULS-100
7.92 ULS-125
7.93 ULS-160
7.94 ULS-200
7.95 ULS-250
7.96 ULS-300
7.97 ULS Maintenance

AU SERIES
7.98 AU Family Page
7.100 AU-60
7.101 AU-80
7.102 AU-110
7.103 AU-140
7.104 AU-165
7.105 AU Maintenance

AU-R SERIES
7.108 AU-R Family Page
7.110 AU-110R
7.111 AU-140R
7.112 AU-R Maintenance

Value-Added Services
8.2 Modular Automation
8.5 Specials
8.6 Robosizer

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DESIGN NOTES

DESIGN NOTES

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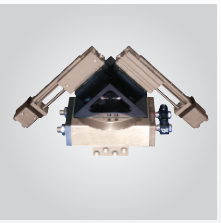

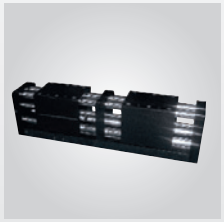

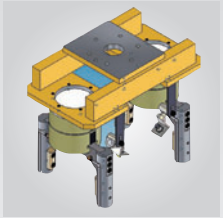

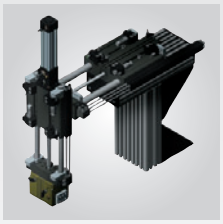

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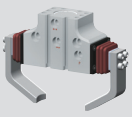

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